

NASA Space Apps Challenge 2025:

Build a Space Biology Knowledge Engine

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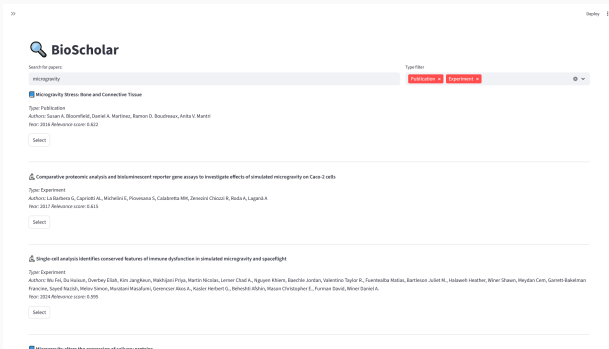
Kool Intergalactic Team

5. October 2025

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Mice in Bion-M 1 space mission: training and selection

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FIGURE 1 Similarity to ST

rate) and number of studies, this method was chosen as the common procedure to reduce variability and one that provided the least interference with the objectives of their *in vivo* studies. Materials and Methods Ethical statement The study was approved by HSC of the Institute of Microbiology (Protocol No. 25, November 2012) and by of Biomedical Ethics Committee of RIMP (Protocol No. 220, 4 April, 2013) and conducted in compliance with the European Commission for the Protection of Vertebrate Animals used for Experimental and Other Scientific Purposes (L26). Animals Experiments were performed with C57BL/6J male mice. The choice of strain was based on the requirements of the tissue harvesting program participants and the fact that C57BL/6J is one of the most widely used strains. The selection of male mice was based on the same requirements. The advantages offered by using males, are their relatively larger size and the absence of sex-related cycling component in females, the vast majority of animal research is conducted using males, so their use in this study made the results more easily comparable to the data in the published literature. Nevertheless, the results associated with

Percentage 2 (similarity 0.62)

perils of animal research is conducted using mice, so this was not this study made the results more readily comparable to the data in the published literature. Nevertheless, the risks, since label with group housing studies were recognized and greatly affected the prepro-1 procedure, it was decided that the optimal age of mice at launch was 4–5 months, when the males were still young but fully mature. The grafts take in mice is known to slow down by this age, and obesity, which C57BL/6 mice are prone to exhibit, is not yet considered a factor. Space-environment effects: microgravity can increase the violence; major risks in mouse state in space are well-documented [32]. It is reasonable to think that even pseudo-pathogenic species may increase morbidity during prolonged exposure in space [4,12]. These considerations underpinned the necessity for the study of specific pathogen-free mice in the Wlo3 in Biomed 1. Space Station PLOS ONE | <https://doi.org/10.1371/journal.pone.0174041> August 14, 2017

Percentage 3 (similarity 0.59)

Discussions of these animals was performed on May 26, 2016, with effort of team members from Russia, USA, France, Germany, Italy and Ukraine who took part in their video studies and those sharing programs resulted in over 70 distinct hypothesis-driven studies. Conclusions of the film #1 are unique in many ways, particularly the experimental design of an automated mouse with living animals. The sex of the mice was male, thus implying greater attention to creation and retention of stable groups of mice for social housing. The overall success was evident: aggressive interactions were noted on single occasions and under conditions of starvation only. The sexual male animals is obviously required for research to make meaningful and the larger size compared to females offered clear advantages, but program of male training for flight and control experiments of the Bionix II project was denied to ensure that mice adapt to stressful conditions of space flight when housed in groups; to collect baseline data from these mice under non-stressful conditions; and, finally, to ensure collection of low-dose data. The results of a year presented here demonstrate that mouse models that stress have been

Passage 4 (similarity 8.5%)

AC, MP, & CA backup/15 mice) included nine designated *in vivo* studies and recovery ($n = 12$) and mice for dissection *in vivo* measurements ($n = 25$). Each *in vivo* study subgroup, in its turn, consisted of 3 mice implanted with telemetry probes to monitor blood pressure and 5 intact animals. Mice were handled and trained before the flight and ground control experiments. Basically, training consisted of shaping the groups of three mice each for social housing and adaptation to open field. The training mice designated from ribcages were more comprehensive. It started with implanting the telemetry probes and, following recovery, a set of preliminary behavioral and functional tests (Fig. 1, Table 1, and 2). Having the DGS habitats were designed to house to deliver mice group [17]. Stable results were achieved after three more maintained following the training program and consequent experiments, with the exception of initial periods of post surgery recovery (3–5 days) and behavioral tests (7 days), when they were housed individually. Individually caged mice (HAM MR, Technicare, flow rate 1000 cc 2 mm used, Technicare mice chambers (red plastic) 12x12x12 cm, 12x12x12 cm).

Mice in Bion-M 1 space mission: training and selection

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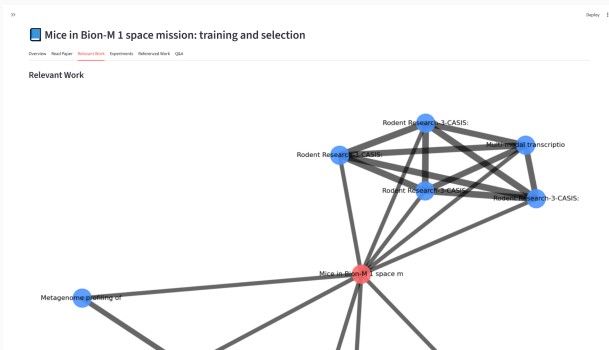
How many male mice were selected for this study?

The study involved a total of 300 male C57BL/6N mice. This number is mentioned in Figure 2, where it states that "Male C57BL/6N mice (n = 300) weighing 20–25 g were..."

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Experiments

International Space Station - Microbial Observatory of Pathogenic Virus, Bacteria, and Fungi project

Authors: Pedro-Henrique A. Teixeira, J. Grubisic, C. de la MA, Smith EA, Karsula F, Petrova L, Deshabrasierin, Jiang C
Year: 2020
Type: Experiment

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Search for genes

Rodent Research-3-CASIS: Mouse liver transcriptomic, proteomic, epigenomic and histology data

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PUBLICATIONS

Publications

Multiscale analysis of multiple missions in space reveal a theme of lipid dysregulation in mouse liver

Authors: Alphee Behcetel, Karishka Chakravarty, Homer Tingle, Nicolas Fardoux, William A. de Simone, Sabry Bryles, Sam Puel, Lai Peix, Amanda Sereida Briles, Gary Hardman, Deanne Taylor, Jonathan M. Galicak, Sylvain V. Gaudin

Year: 2019

Type: Publication

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