Resource Summary Report

Generated by SPARC SAWG on Sep 17, 2026

GeneLab

RRID:SCR_017658
Type: Tool

Proper Citation

GeneLab (RRID:SCR_017658)

Resource Information

URL: http://genelab.nasa.gov

Proper Citation: GeneLab (RRID:SCR_017658)

Description: Omics database for spaceflight experiments. Interactive, open access resource where scientists can upload, download, store, search, share, transfer, and analyze omics data from spaceflight and corresponding analogue experiments. Enables exploration of molecular network responses of terrestrial biology to space environment. Contains curated omics data, metadata and radiation dosimetry for model organisms. Supports standard guidelines for submission of datasets, MIAME for microarray, ENCODE Consortium Guidelines for RNA-seq and MIAPE Guidelines for proteomics.

Abbreviations: GLDS

Synonyms: GeneLab Data System

Resource Type: data or information resource, data repository, database, service resource, storage service resource

Defining Citation: PMID:30329036

Keywords: Omics, spaceflight, experiment, data, system, bioinformatic, repository, terrestrial, biology, space, radiation, dosimetry, model, organism, standard, guideline, submission, dataset

Funding: Space Life and Physical Sciences Division at NASA Headquarters

Resource Name: GeneLab

Resource ID: SCR_017658

Alternate IDs: r3d100013680

Alternate URLs: https://www.nasa.gov/centers-and-facilities/ames/what-is-nasas-genelab/, https://doi.org/10.17616/R31NJN1S

Record Creation Time: 20220129T080336+0000

Record Last Update: 20260912T195855+0000

Ratings and Alerts

No rating or validation information has been found for GeneLab.

No alerts have been found for GeneLab.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 35 mentions in open access literature.

Listed below are recent publications. The full list is available at SPARC SAWG .

Kim J, et al. (2024) Single-cell multi-ome and immune profiles of the Inspiration4 crew reveal conserved, cell-type, and sex-specific responses to spaceflight. Nature communications, 15(1), 4954.

Zhou M, et al. (2024) Light has a principal role in the Arabidopsis transcriptomic response to the spaceflight environment. NPJ microgravity, 10(1), 82.

Yan W, et al. (2024) Differential network analysis reveals the key role of the ECM-receptor pathway in ?-particle-induced malignant transformation. Molecular therapy. Nucleic acids, 35(3), 102260.

Stolc V, et al. (2024) Metabolic stress in space: ROS-induced mutations in mice hint at a new path to cancer. Redox biology, 78, 103398.

Perdyan A, et al. (2024) Chromosomal positioning and epigenetic architecture influence DNA methylation patterns triggered by galactic cosmic radiation. Scientific reports, 14(1), 1324.

Gupta P, et al. (2024) Plant Reactome Knowledgebase: empowering plant pathway exploration and OMICS data analysis. Nucleic acids research, 52(D1), D1538.

Çelen ?, et al. (2023) Transcriptomic Signature of the Simulated Microgravity Response in Caenorhabditis elegans and Comparison to Spaceflight Experiments. Cells, 12(2).

Wang S, et al. (2023) Exploring outer space biophysical phenomena via SpaceLID. Scientific reports, 13(1), 17400.

Su SH, et al. (2023) Brachypodium distachyon Seedlings Display Accession-Specific Morphological and Transcriptomic Responses to the Microgravity Environment of the International Space Station. Life (Basel, Switzerland), 13(3).

Ferl RJ, et al. (2023) Transcriptomic dynamics in the transition from ground to space are revealed by Virgin Galactic human-tended suborbital spaceflight. NPJ microgravity, 9(1), 95.

Vitry G, et al. (2022) Muscle atrophy phenotype gene expression during spaceflight is linked to a metabolic crosstalk in both the liver and the muscle in mice. iScience, 25(10), 105213.

Hao Y, et al. (2022) Integrating bioinformatic strategies in spatial life science research. Briefings in bioinformatics, 23(6).

Dello Russo C, et al. (2022) Physiological adaptations affecting drug pharmacokinetics in space: what do we really know? A critical review of the literature. British journal of pharmacology, 179(11), 2538.

Lau P, et al. (2022) Dissociation of Bone Resorption and Formation in Spaceflight and Simulated Microgravity: Potential Role of Myokines and Osteokines? Biomedicines, 10(2).

Madrigal P, et al. (2022) Machine learning algorithm to characterize antimicrobial resistance associated with the International Space Station surface microbiome. Microbiome, 10(1), 134.

Baba AI, et al. (2022) Plants in Microgravity: Molecular and Technological Perspectives. International journal of molecular sciences, 23(18).

Manian V, et al. (2021) An Integrative Network Science and Artificial Intelligence Drug Repurposing Approach for Muscle Atrophy in Spaceflight Microgravity. Frontiers in cell and developmental biology, 9, 732370.

Brereton NJB, et al. (2021) Reanalysis of the Mars500 experiment reveals common gut microbiome alterations in astronauts induced by long-duration confinement. Computational and structural biotechnology journal, 19, 2223.

Villacampa A, et al. (2021) From Spaceflight to Mars g-Levels: Adaptive Response of A. Thaliana Seedlings in a Reduced Gravity Environment Is Enhanced by Red-Light Photostimulation. International journal of molecular sciences, 22(2).

Berrios DC, et al. (2021) NASA GeneLab: interfaces for the exploration of space omics data. Nucleic acids research, 49(D1), D1515.