



1

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Fundamental biological features of spaceflight: Advancing the field to enable deep-space exploration.

Cell. 2020 Nov 25;183(5):1162-84. Review.

<https://pubmed.ncbi.nlm.nih.gov/33242416>

Journal Impact Factor: 41.582

Cover image: On the cover: This issue features a review (Afshinnekoo et al., 2020) and a research article (da Silveira et al., 2020) as part of a special collection of papers on "The Biology of Spaceflight" published across Cell Press. The cover art shows city lights spanning Japan, glimmering below Earth's thin atmosphere, as well as the International Space Station with a docked Soyuz Space Capsule. Photograph by Scott Kelly. [https://www.cell.com/cell/issue?pii=S0092-8674\(19\)X0025-2#](https://www.cell.com/cell/issue?pii=S0092-8674(19)X0025-2#)

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Angelos E, Ko DK, Zemelis-Durfee S, Brandizzi F.

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Journal Impact Factor: 4.415

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Rad-Bio-App: A discovery environment for biologists to explore spaceflight-related radiation exposures.

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Journal Impact Factor: 5.640

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Journal Impact Factor: 4.447

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Comprehensive multi-omics analysis reveals mitochondrial stress as a central biological hub for spaceflight impact.

Cell. 2020 Nov 25;183(5):1185-201.e20.

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Journal Impact Factor: 41.582

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New insights into lignification via network and multi-omics analyses of arogenate dehydratase knock-out mutants in *Arabidopsis thaliana*.
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Journal Impact Factor: 6.953

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<https://doi.org/10.2478/gsr-2021-0010>

Journal Impact Factor: Not available for this journal

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The fast and the furious: Rapid long-range signaling in plants.

Plant Physiol. 2021 Mar;185(3):694-706. Review.

<https://pubmed.ncbi.nlm.nih.gov/33793939>

Journal Impact Factor: 8.340

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Journal Impact Factor: 5.753

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Plant biology for space exploration – Building on the past, preparing for the future.

Life Sci Space Res (Amst). 2021 May;29:1-7. Review.

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Journal Impact Factor: 2.082

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Spaceflight affects neuronal morphology and alters transcellular degradation of neuronal debris in adult *Caenorhabditis elegans*.

iScience. 2021 Feb 19;24(2):102105.

<https://pubmed.ncbi.nlm.nih.gov/33659873>

Journal Impact Factor: 4.447

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Lawler JM, Hord JM, Ryan P, Holly D, Janini Gomes M, Rodriguez D, Guzzoni V, Garcia-Villatoro E, Green C, Lee Y, Little S, Garcia M, Hill L, Brooks MC, Lawler MS, Keys N, Mohajeri A, Kamal KY.

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Reference-guided metagenomics reveals genome-level evidence of potential microbial transmission from the ISS environment to an astronaut's microbiome.

iScience. 2021 Feb 19;24(2):102114.

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Journal Impact Factor: 4.000

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Journal Impact Factor: 9.423

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<https://doi.org/10.1007/s12217-020-09837-5>

Journal Impact Factor: 1.982

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The importance of Earth reference controls in spaceflight-omics research: Characterization of nucleolin mutants from the Seedling Growth experiments.

iScience. 2020 Nov 20;23(11):101686.

<https://pubmed.ncbi.nlm.nih.gov/33163940>

Journal Impact Factor: 4.447

Cover image: On the cover: This issue features the first article (Manzano et al., 2020) from a special collection on "The Biology of Spaceflight" in *iScience* and across other Cell Press journals. The image depicts Earth's atmosphere below the International Space Station, featuring the aurora borealis and the stars. Photograph by Scott Kelly. [https://www.cell.com/iscience/issue?pii=S2589-0042\(20\)X0011-3](https://www.cell.com/iscience/issue?pii=S2589-0042(20)X0011-3)

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Journal Impact Factor: 5.640

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Comparisons of transcriptome profiles from *Bacillus subtilis* cells grown in space versus High Aspect Ratio Vessel (HARV) clinostats reveal a low degree of concordance.

Astrobiology. 2020 Dec 14;20(12):1498-509.

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Journal Impact Factor: 4.335

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Morrison MD, Thissen JB, Karouia F, Mehta S, Urbaniak C, Venkateswaran K, Smith DJ, Jaing C.

Investigation of spaceflight induced changes to astronaut microbiomes.

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Journal Impact Factor: 3.817

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Appl Sci. 2021 Apr 1;11(7):3122.

<https://doi.org/10.3390/app11073122>

Journal Impact Factor: 2.679

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Nelson CA, Acuna AU, Paul AM, Scott RT, Butte AJ, Cekanaviciute E, Baranzini SE, Costes SV.

Knowledge network embedding of transcriptomic data from spaceflown mice uncovers signs and symptoms associated with terrestrial diseases.

Life (Basel). 2021 Jan 12;11(1):42.

<https://pubmed.ncbi.nlm.nih.gov/33445483>

Journal Impact Factor: 3.817

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Growth and antifungal resistance of the pathogenic yeast, *Candida albicans*, in the microgravity environment of the International Space Station: An aggregate of multiple flight experiences.

Life (Basel). 2021 Apr;11(4):283.

<https://pubmed.ncbi.nlm.nih.gov/33801697>

Journal Impact Factor: 3.817

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Overbey EG, Saravia-Butler AM, Zhang Z, Rathi KS, Fogle H, da Silveira WA, Barker RJ, Bass JJ, Beheshti A, Berrios DC, Blaber EA, Cekanaviciute E, Costa HA, Davin LB, Fisch KM, Gebre SG, Geniza M, Gilbert R, Gilroy S, Hardiman G, Herranz R, Kidane YH, Kruse CPS, Lee MD, Liefeld T, Lewis NG, McDonald JT, Meller R, Mishra T, Perera IY, Ray S, Reinsch SS, Rosenthal SB, Strong M, Szewczyk NJ, Tahimic CGT, Taylor DM, Vandenbrink JP, Villacampa A, Weging S, Wolverton C, Wyatt SE, Zea L, Costes SV, Galazka JM.

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iScience. 2021 Apr;24(4):102361.

<https://pubmed.ncbi.nlm.nih.gov/33870146>

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Paul A-L, Haveman N, Califar B, Ferl RJ.

Epigenomic regulators elongator complex subunit 2 and methyltransferase 1 differentially condition the spaceflight response in Arabidopsis.

Front Plant Sci. 2021 Sep 13;12:691790.

<https://pubmed.ncbi.nlm.nih.gov/34589093>

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Paul AM, Cheng-Campbell M, Blaber EA, Anand S, Bhattacharya S, Zwart SR, Crucian BE, Smith SM, Meller R, Grabham P, Beheshti A.

Beyond low-Earth orbit: Characterizing immune and microRNA differentials following simulated deep spaceflight conditions in mice.

iScience. 2020 Dec 18;23(12):101747.

<https://pubmed.ncbi.nlm.nih.gov/33376970>

Journal Impact Factor: 4.447

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Paul AM, Mhatre SD, Cekanaviciute E, Schreurs A-S, Tahimic CGT, Globus RK, Anand S, Crucian BE, Bhattacharya S.

Neutrophil-to-lymphocyte ratio: A biomarker to monitor the immune status of astronauts.

Front Immunol. 2020 Nov 2;11:564950.

<https://doi.org/10.3389/fimmu.2020.564950>

Journal Impact Factor: 6.429

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Sci Rep. 2021 Jun 1;11(1):11452.

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Journal Impact Factor: 4.379

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<https://pubmed.ncbi.nlm.nih.gov/33582844>

Journal Impact Factor: 3.356

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Pramanik A, Gao Y, Patibandla S, Mitra D, McCandless MG, Fassero LA, Gates K, Tandon R, Ray PC.

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J Phys Chem Lett. 2021 Mar 4;12(8):2166-71.

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Nanoscale Adv. 2021 Mar 21;3(6):1588-96.

<https://pubmed.ncbi.nlm.nih.gov/34381960>

Journal Impact Factor: 4.553

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The ARP2/3 complex, acting cooperatively with Class I formins, modulates penetration resistance in *Arabidopsis* against powdery mildew invasion.

Plant Cell. 2021 Sep;33(9):3151-75.

<https://pubmed.ncbi.nlm.nih.gov/34181022>

Journal Impact Factor: 11.277

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NemaLife chip: A micropillar-based microfluidic culture device optimized for aging studies in crawling *C. elegans*.

Sci Rep. 2020 Oct 1;10(1):16190.

<https://pubmed.ncbi.nlm.nih.gov/33004810>

Journal Impact Factor: 4.379

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A parasitoid wasp of *Drosophila* employs preemptive and reactive strategies to deplete its host's blood cells.

PLoS Pathog. 2021 May 28;17(5):e1009615.

<https://pubmed.ncbi.nlm.nih.gov/34048506>

Journal Impact Factor: Not available for this journal

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An analysis of the effects of spaceflight and vaccination on antibody repertoire diversity.

Immunohorizons. 2021 Aug 1;5(8):675-86.

<https://pubmed.ncbi.nlm.nih.gov/34433623>

Journal Impact Factor: Not available for this journal

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Rubinstein L, Schreurs A-S, Torres SM, Steczina S, Lowe MG, Kiffer F, Allen AR, Ronca AE, Sowa MB, Globus RK, Tahimic CGT.

Overexpression of catalase in mitochondria mitigates changes in hippocampal cytokine expression following simulated microgravity and isolation.

npj Microgravity. 2021 Jul 6;7(1):24.

<https://pubmed.ncbi.nlm.nih.gov/34230490>

Journal Impact Factor: 4.415

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Rutter L, Barker R, Bezdán D, Cope H, Costes SV, Degoricija L, Fisch KM, Gabitto MI, Gebre S, Giacomello S, Gilroy S, Green SJ, Mason CE, Reinsch SS, Szewczyk NJ, Taylor DM, Galazka JM, Herranz R, Muratani M.

A new era for space life science: International standards for space omics processing.

Patterns (N Y). 2020 Dec 11;1(9):100148. Review.

<https://pubmed.ncbi.nlm.nih.gov/33336201>

Journal Impact Factor: Not available for this journal

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Schuerger AC, Amaradasa BS, Dufault NS, Hummerick ME, Richards JT, Khodadad CL, Smith TM, Massa GD.

***Fusarium oxysporum* as an opportunistic fungal pathogen on *Zinnia hybrida* plants grown on board the International Space Station.**

Astrobiology. 2021 Sep 16;21(9):1029-48.

<https://pubmed.ncbi.nlm.nih.gov/33926205>

Journal Impact Factor: 4.335

Cover image: On the cover: The Veggie system on the International Space Station is a small plant growth chamber that is being used to test microgravity crop production. A variety of leafy green crops have been grown in Veggie and consumed by astronauts, with samples returned to Earth for microbiological and chemical analysis. In 2015–2016, growth and flowering of the ornamental plant *Zinnia hybrida* was tested in Veggie (VEG-01C). In late December 2015, three zinnia plants developed foliar and stem rots caused by the opportunistic fungal pathogen *Fusarium oxysporum* (see Schuerger et al., 2021 in this issue). Eventually, the disease was suppressed by reducing excess water in the plant canopies. A healthy zinnia plant was photographed as a mature canopy with multiple blossoms floating in the International Space Station Cupola module. Photo courtesy of NASA; image iss046e041517. <https://www.liebertpub.com/toc/ast/21/9>

63

Shaka S, Carpo N, Tran V, Espinosa-Jeffrey A.

Behavior of astrocytes derived from human neural stem cells flown onto space and their progenies.

Appl Sci. 2020 Dec 23;11(1):41.

<https://doi.org/10.3390/app11010041>

Journal Impact Factor: 2.679

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Shaka S, Carpo N, Tran V, Ma Y-Y, Karouia F, Espinosa-Jeffrey A.

Human neural stem cells in space proliferate more than ground control cells: Implications for long-term space travel.

J Stem Cell Res Dev Ther. 2021 Apr 27;7:069.

<https://doi.org/10.24966/SRDT-2060/100069>

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