



Space Biology Publications—Fiscal Year 2023

1

Anupom T, Vanapalli SA.

A compact imaging platform for conducting *C. elegans* phenotypic assays on Earth and in spaceflight.

Life (Basel). 2023 Jan 10;13(1):200.

<https://pubmed.ncbi.nlm.nih.gov/36676149>

Journal Impact Factor: 3.253

2

Arguelles J, Lee J, Cardenas LV, Govind S, Singh S.

In silico analysis of a *Drosophila* parasitoid venom peptide reveals prevalence of the Cation-Polar-Cation clip motif in knottin proteins.

Pathogens. 2023 Jan 14;12(1):143.

<https://pubmed.ncbi.nlm.nih.gov/36678491>

Journal Impact Factor: 3.7

3

Bakshi A, Choi WG, Kim SH, Gilroy S.

The vacuolar Ca²⁺ transporter CATION EXCHANGER 2 regulates cytosolic calcium homeostasis, hypoxic signaling, and response to flooding in *Arabidopsis thaliana*.

New Phytol. 2023 Sep 25.

<https://pubmed.ncbi.nlm.nih.gov/37743731>

Journal Impact Factor: 9.4

4

Bakshi A, Gilroy S.

Analysis of plant flooding response.

In: Methods in Enzymology. Academic Press, 2022.

<https://doi.org/10.1016/bs.mie.2022.08.043>

Journal Impact Factor: 1.682

5

Bakshi A, Swanson SJ, Gilroy S.

A touchy subject: Ca²⁺ signaling during leaf movements in Mimosa.

Cell Calcium. 2023 Mar;110:102695.

<https://doi.org/10.1016/j.ceca.2023.102695>

Journal Impact Factor: 4.69

6

Barker R, Kruse CPS, Johnson C, Saravia-Butler A, Fogle H, Chang HS, Trane RM, Kinscherf N, Villacampa A, Manzano A, Herranz R, Davin LB, Lewis NG, Perera I, Wolverton C, Gupta P, Jaiswal P, Reinsch SS, Wyatt S, Gilroy S.

Meta-analysis of the spaceflight and microgravity response of the *Arabidopsis* plant transcriptome.

npj Microgravity. 2023 Mar 20;9(1):21.

<https://pubmed.ncbi.nlm.nih.gov/36941263>

Journal Impact Factor: 5.1

7

Bishé B, Golden SS, Golden JW.

Glycogen metabolism is required for optimal cyanobacterial growth in the rapid light-dark cycle of low-Earth orbit.

Life Sci Space Res. 2023 Feb;36:18-26.

<https://doi.org/10.1016/j.lssr.2022.11.001>

Journal Impact Factor: 2.73

8

Bowman RN, McKay CP, Kiss JZ.

Design of spaceflight hardware for plant growth in a sealed habitat for experiments on the Moon.

Gravit Space Res. 2022 Dec 24;10(1):37-44.

<https://doi.org/10.2478/gsr-2022-0005>

Journal Impact Factor: Not available for this journal

9

Campbell RA, Manne BK, Banerjee M, Middleton EA, Ajanel A, Schwertz H, Denorme F, Stubben C, Montenont E, Saperstein S, Page L, Tolley ND, Lim DL, Brown SM, Grissom CK, Sborov DW, Krishnan A, Rondina MT.

IFITM3 regulates fibrinogen endocytosis and platelet reactivity in nonviral sepsis.

J Clin Invest. 2022 Dec 1;132(23).

<https://pubmed.ncbi.nlm.nih.gov/36194487>

Journal Impact Factor: 15.9

10

Cannon AE, Sabharwal T, Salmi ML, Chittari GK, Annamalai V, Leggett L, Morris H, Slife C, Clark G, Roux SJ.

Two distinct light-induced reactions are needed to promote germination in spores of *Ceratopteris richardii*.

Front Plant Sci. 2023 Jun 2;14:1150199.

<https://pubmed.ncbi.nlm.nih.gov/37332704>

Journal Impact Factor: 6.627

11

Castro CL, Velez-Justiniano YA, Stahl-Rommel S, Nguyen HN, Almengor A, Dunbar B, McLean RJC, Sysoeva TA, Castro-Wallace SL.

Genome sequences of bacteria isolated from the International Space Station water systems.

Microbiol Resour Announc. 2023 Jun 7:e0015823.

<https://pubmed.ncbi.nlm.nih.gov/37284768>

Journal Impact Factor: 3.03

12

Çelen İ, Jayasinghe A, Doh JH, Sabanayagam CR.

Transcriptomic signature of the simulated microgravity response in *Caenorhabditis elegans* and comparison to spaceflight experiments.

Cells. 2023 Jan 10;12(2):270.

<https://doi.org/10.3390/cells12020270>

Journal Impact Factor: 7.666

13

Clary JL, France CS, Lind K, Shi R, Alexander JS, Richards JT, Scott RS, Wang J, Lu X-H, Harrison L.

Development of an inexpensive 3D clinostat and comparison with other microgravity simulators using *Mycobacterium marinum*.

Front Space Technol. 2022 Oct 28;3:1032610.

<https://doi.org/10.3389/frspt.2022.1032610>

Journal Impact Factor: Not available for this journal

14

Cope H, Willis CRG, MacKay MJ, Rutter LA, Toh LS, Williams PM, Herranz R, Borg J, Bezdan D, Giacomello S, Muratani M, Mason CE, Etheridge T, Szewczyk NJ.

Routine omics collection is a golden opportunity for European human research in space and analog environments.

Patterns. 2022 Oct 14;3(10):100550. Review.

<https://pubmed.ncbi.nlm.nih.gov/36277820>

Journal Impact Factor: 6.5

15

Douglas GL, DeKerlegand D, Dlouhy H, Dumont-Leblond N, Fields E, Heer M, Krieger S, Mehta S, Rooney BV, Torralba MG, Whiting SE, Crucian B, Lorenzi H, Smith SM, Young M, Zwart SR.

Impact of diet on human nutrition, immune response, gut microbiome, and cognition in an isolated and confined mission environment.

Sci Rep. 2022 Dec 15;12:20847.

<https://pubmed.ncbi.nlm.nih.gov/36522361>

Journal Impact Factor: 4.996

16

Dwivedi R, Farrag M, Sharma P, Shi D, Shami AA, Misra SK, Ray P, Shukla J, Zhang F, Linhardt RJ, Sharp JS, Tandon R, Pomin VH.

The sea cucumber *Thyonella gemmata* contains a low anticoagulant sulfated fucan with high anti-SARS-CoV-2 actions against wild-type and delta variants.

J Nat Prod. 2023 Jun 12;86(6):1463-75.

<https://pubmed.ncbi.nlm.nih.gov/37306476>

Journal Impact Factor: 4.803

17

Farrag M, Dwivedi R, Sharma P, Kumar D, Tandon R, Pomin VH.

Structural requirements of *Holothuria floridana* fucosylated chondroitin sulfate oligosaccharides in anti-SARS-CoV-2 and anticoagulant activities.

PLoS ONE. 2023 May 11;18(5):e0285539.

<https://doi.org/10.1371/journal.pone.0285539>

Journal Impact Factor: Not available for this journal

18

Fernandez JC, Gilroy S.

Imaging systemic calcium response and its molecular dissection using virus-induced gene silencing.

In: Methods in Enzymology: Academic Press, 2022.

<https://doi.org/10.1016/bs.mie.2022.08.006>

Journal Impact Factor: Not applicable to this publication

19

Flores P, McBride SA, Galazka JM, Varanasi KK, Zea L.

Biofilm formation of *Pseudomonas aeruginosa* in spaceflight is minimized on lubricant impregnated surfaces.

npj Microgravity. 2023 Aug 16;9(1):66.

<https://doi.org/10.1038/s41526-023-00316-w>

Journal Impact Factor: 5.1

20

Freitag M, Schwertz H.

A new role of NAP1L1 in megakaryocytes and human platelets.

Int J Mol Sci. 2022 Nov 24;23(23):14694.

<https://doi.org/10.3390/ijms232314694>

Journal Impact Factor: 6.208

21

Friedman MA, Buettmann EG, Zeineddine Y, Abraham LB, Hopcock GA, Meas SJ, Zhang Y, Farber CR, Donahue HJ.

Genetic variation influences the skeletal response to hindlimb unloading in the eight founder strains of the diversity outbred mouse population.

J Orthop Res. 2023 Jun 15.

<https://pubmed.ncbi.nlm.nih.gov/37321985>

Journal Impact Factor: 3.103

22

Garcias-Bonet N, Roik A, Tierney B, García FC, Villela HDM, Dungan AM, Quigley KM, Sweet M, Berg G, Gram L, Bourne DG, Ushijima B, Sogin M, Hoj L, Duarte G, Hirt H, Smalla K, Rosado AS, Carvalho S, Thurber RV, Ziegler M, Mason CE, van Oppen MJH, Voolstra CR, Peixoto RS.

Horizon scanning the application of probiotics for wildlife.

Trends Microbiol. Sep 25.

<https://doi.org/10.1016/j.tim.2023.08.012>

Journal Impact Factor: 15.9

23

Gesztesi J, Broddrick JT, Lannin T, Lee JA.

The chemical neighborhood of cells in a diffusion-limited system.

Front Microbiol. 2023 Apr 18;14:1155726.

<https://doi.org/10.3389/fmicb.2023.1155726>

Journal Impact Factor: 6.064

24

Goeres DM, Velez-Justiniano Y-A, Kjellerup BV, McLean RJC.

Biofilm and human spaceflight.

Biofilm. 2023 Aug 18;100150.

<https://doi.org/10.1016/j.biofilm.2023.100150>

Journal Impact Factor: 6.8

25

Guan Y, Racioppi L, Gerecht S.

Engineering biomaterials to tailor the microenvironment for macrophage–endothelium interactions.

Nat Rev Mater. 2023 Sep 4.

<https://doi.org/10.1038/s41578-023-00591-9>

Journal Impact Factor: 83.5

26

Hasenstein KH, Park MR, John SP, Ajala C.

High-gradient magnetic fields and starch metabolism: Results from a space experiment.

Sci Rep. 2022 Oct 29;12:18256.

<https://pubmed.ncbi.nlm.nih.gov/36309570>

Journal Impact Factor: 4.996

27

Haveman NJ, Schuerger AC, Yu P-L, Brown M, Doebler R, Paul A-L, Ferl RJ.

Advancing the automation of plant nucleic acid extraction for rapid diagnosis of plant diseases in space.

Front Plant Sci. 2023 Jun 14;14:1194753.

<https://doi.org/10.3389/fpls.2023.1194753>

Journal Impact Factor: 6.627

28

Hughes AM, Vandenbrink JP, Kiss JZ.

Efficacy of the random positioning machine as a terrestrial analogue to microgravity in studies of seedling phototropism.

Microgravity Sci Technol. 2023 Aug 14;35:43.

<https://doi.org/10.1007/s12217-023-10066-9>

Journal Impact Factor: 1.8

29

Hupka M, Kedia R, Schauer R, Shepard B, Granados-Presa M, Vande Hei M, Flores P, Zea L.

Morphology of *Penicillium rubens* biofilms formed in space.

Life. 2023 Apr 13;13(4):1001.

<https://doi.org/10.3390/life13041001>

Journal Impact Factor: 3.253

30

Iyer J, Mhatre SD, Gilbert R, Bhattacharya S.

Multi-system responses to altered gravity and spaceflight: Insights from *Drosophila melanogaster*.

Neurosci Biobehav Rev. 2022 Nov;142:104880. Review.

<https://pubmed.ncbi.nlm.nih.gov/36126744>

Journal Impact Factor: 9.052

31

Kamal KY, Lawler JM.

Cellular and molecular signaling meet the space environment.

Int J Mol Sci. 2023 Mar 22;24(6):5955.

<https://doi.org/10.3390/ijms24065955>

Journal Impact Factor: 6.208

32

Koehle AP, Brumwell SL, Seto EP, Lynch AM, Urbaniak C.

Microbial applications for sustainable space exploration beyond low Earth orbit.

npj Microgravity. 2023 Jun 21;9:47. Review.

<https://pubmed.ncbi.nlm.nih.gov/37344487>

Journal Impact Factor: 4.97

33

Kordyum EL, Artemenko OA, Hasenstein KH.

Lipid rafts and plant gravisensitivity.

Life (Basel). 2022 Nov 7;12(11):1809. Review.

<https://pubmed.ncbi.nlm.nih.gov/36362962>

Journal Impact Factor: 3.253

34

Kothiyal P, Eley G, Ilangovan H, Hoadley KA, Elgart SR, Mao XW, Eslami P.

A multi-omics longitudinal study of the murine retinal response to chronic low-dose irradiation and simulated microgravity.

Sci Rep. 2022 Oct 7;12:16825.

<https://pubmed.ncbi.nlm.nih.gov/36207342>

Journal Impact Factor: 4.996

35

Kremsky I, Ali S, Stanbouly S, Holley J, Justinen S, Pecaut M, Crapo J, Mao X.

Spaceflight-induced gene expression profiles in the mouse brain are attenuated by treatment with the antioxidant BuOE.

Int J Mol Sci. 2023 Sep 1;24(17):13569.

<https://doi.org/10.3390/ijms241713569>

Journal Impact Factor: 5.6

36

Land ES, Canaday E, Meyers A, Wyatt S, Perera IY.

Bridging the gap: Parallel profiling of ribosome associated and total RNA species can identify transcriptional regulatory mechanisms of plants in spaceflight.

J Plant Interact. 2023 Aug 28.

<https://doi.org/10.1080/17429145.2023.2248173>

37

Licata JP, Schwab KH, Har-El YE, Gerstenhaber JA, Lelkes PI.

Bioreactor technologies for enhanced organoid culture.

Int J Mol Sci. 2023 Jul 13;24(14):11427. Review.

<https://pubmed.ncbi.nlm.nih.gov/37511186>

Journal Impact Factor: 5.6

38

Mao X, Stanbouly S, Holley J, Pecaut M, Crapo J.

Evidence of spaceflight-induced adverse effects on photoreceptors and retinal function in the mouse eye.

Int J Mol Sci. 2023 Apr 17;24(8):7362.

<https://doi.org/10.3390/ijms24087362>

Journal Impact Factor: 6.208

39

Maurya AK, Sharma P, Samanta P, Shami AA, Misra SK, Zhang F, Thara R, Kumar D, Shi D, Linhardt RJ, Sharp JS, Doerksen RJ, Tandon R, Pomin VH.

Structure, anti-SARS-CoV-2, and anticoagulant effects of two sulfated galactans from the red alga *Botryocladia occidentalis*. Int J Biol Macromol.

2023 May 31;238:124168.

<https://pubmed.ncbi.nlm.nih.gov/36963552>

Journal Impact Factor: 8.2

40

McDonagh F, Singh NK, Venkateswaran K, Lonappan AM, Hallahan B, Tuohy A, Burke L, Kovarova A, Miliotis G.

First complete genome of a multidrug resistant strain of the novel human pathogen *Kalamella piersonii* (GABEKP28) identified in human saliva.

J Glob Antimicrob Resist. 2023 Mar;32:31-34.

<https://pubmed.ncbi.nlm.nih.gov/36586465>

Journal Impact Factor: 5.6

41

Medina F-J, Manzano A, Herranz R, Kiss JZ.

Red light enhances plant adaptation to spaceflight and Mars g-levels.

Life. 2022 Sep 24;12(10):1484. Review.

<https://doi.org/10.3390/life12101484>

Journal Impact Factor: 3.251

42

Meyers A, Land E, Perera I, Canaday E, Wyatt SE.

Polyethersulfone (PES) membrane on agar plates as a plant growth platform for spaceflight.

Gravit Space Res. 2022 Dec 30;10(1):30-6.

<https://doi.org/10.2478/gsr-2022-0004>

Journal Impact Factor: Not available for this journal

43

Morsi AH, Massa GD, Morrow RC, Wheeler RM, Elsassy MA, Mitchell CA.

Leaf yield and mineral content of mizuna in response to cut-and-come-again harvest, substrate particle size, and fertilizer formulation in a simulated spaceflight environment.

Life Sci Space Res. 2023 Sep 20.

<https://doi.org/10.1016/j.lssr.2023.09.005>

Journal Impact Factor: 2.5

44

Naithani S, Deng CH, Sahu SK, Jaiswal P.

Exploring pan-genomes: An overview of resources and tools for unraveling structure, function, and evolution of crop genes and genomes.

Biomolecules. 2023 Sep 17;13(9):1403.

<https://doi.org/10.3390/biom13091403>

Journal Impact Factor: 5.5

45

Naithani S, Mohanty B, Elser J, D'Eustachio P, Jaiswal P.

Biocuration of a transcription factors network involved in submergence tolerance during seed germination and coleoptile elongation in rice (*Oryza sativa*).

Plants. 2023 May 29;12(11):2146.

<https://doi.org/10.3390/plants12112146>

Journal Impact Factor: 4.658

46

Nakashima J, Pattathil S, Avci U, Chin S, Alan Sparks J, Hahn MG, Gilroy S, Blancaflor EB.
Glycome profiling and immunohistochemistry uncover changes in cell walls of *Arabidopsis thaliana* roots during spaceflight.
npj Microgravity. 2023 Aug 22;9:68.
<https://doi.org/10.1038/s41526-023-00312-0>
Journal Impact Factor: 5.1

47

Narayanan SA.
Gravity's effect on biology.
Front Physiol. 2023 Jul 3;14:1199175.
<https://doi.org/10.3389/fphys.2023.1199175>
Journal Impact Factor: 4

48

Nemec-Bakk AS, Sridharan V, Seawright JW, Nelson GA, Cao M, Singh P, Cheema AK, Singh B, Li Y, Koturbash I, Miousse IR, Ewing LE, Skinner CM, Landes RD, Lowery JD, Mao X-W, Singh SP, Boerma M.
Effects of proton and oxygen ion irradiation on cardiovascular function and structure in a rabbit model.
Life Sci Space Res. 2023 Mar 30.
<https://doi.org/10.1016/j.lssr.2023.03.008>
Journal Impact Factor: 2.73

49

Olanrewaju GO, Kruse CPS, Wyatt SE.
Functional meta-analysis of the proteomic responses of *Arabidopsis* seedlings to the spaceflight environment reveals multi-dimensional sources of variability across spaceflight experiments.
Int J Mol Sci. 2023 Sep 22;24(19):14425.
<https://doi.org/10.3390/ijms241914425>
Journal Impact Factor: 5.6

50

Overbey EG, Das S, Cope H, Madrigal P, Andrusivova Z, Frapard S, Klotz R, Bezdan D, Gupta A, Scott RT, Park J, Chirko D, Galazka JM, Costes SV, Mason CE, Herranz R, Szewczyk NJ, Borg J, Giacomello S.
Challenges and considerations for single-cell and spatially resolved transcriptomics sample collection during spaceflight.
Cell Rep. 2022 Oct 31;100325.
<https://doi.org/10.1016/j.crmeth.2022.100325>
Journal Impact Factor: 9.995

51

Oyefeso FA, Goldberg G, Opoku N, Vazquez M, Bertucci A, Chen Z, Wang C, Muotri AR, Pecaut MJ.

Effects of acute low-moderate dose ionizing radiation to human brain organoids.

PLoS One. 2023 May 31;18(5):e0282958.

<https://pubmed.ncbi.nlm.nih.gov/37256873>

Journal Impact Factor: Not available for this journal

52

Park J, Kim J, Lewy T, Rice CM, Elemento O, Rendeiro AF, Mason CE.

Spatial omics technologies at multimodal and single cell/subcellular level.

Genome Biol. 2022 Dec 13;23:256. Review.

<https://pubmed.ncbi.nlm.nih.gov/36514162>

Journal Impact Factor: 17.906

53

Patel OV, Partridge C, Plaut K.

Space environment impacts homeostasis: Exposure to spaceflight alters mammary gland transportome genes.

Biomolecules. 2023 May 22;13(5):872.

<https://pubmed.ncbi.nlm.nih.gov/37238741>

Journal Impact Factor: 6.064

54

Ranson TM, Barton ME, McLean RJC.

Influence of central metabolism disruption on *Escherichia coli* biofilm formation.

Can J Microbiol. 2023 Sep 20.

<https://pubmed.ncbi.nlm.nih.gov/37728257>

Journal Impact Factor: 2.8

55

Rosa-Caldwell ME, Eddy KT, Rutkove SB, Breithaupt L.

Anorexia nervosa and muscle health: A systematic review of our current understanding and future recommendations for study.

International Journal of Eating Disorders. 2022 Dec 18;1-18. Review.

<https://doi.org/10.1002/eat.23878>

Journal Impact Factor: 5.791

56

Rosa-Caldwell ME, Mortreux M, Wadhwa A, Kaiser UB, Sung DM, Bouxsein ML, Rutkove SB.

Influence of gonadectomy on muscle health in micro- and partial-gravity environments in rats.

J Appl Physiol (1985). 2023 Apr 27.

<https://pubmed.ncbi.nlm.nih.gov/37102698>

Journal Impact Factor: 3.880

57

Rosa-Caldwell ME, Mortreux M, Wadhwa A, Kaiser UB, Sung D-M, Bouxsein ML, Rutkove SB.
Sex differences in muscle health in simulated micro- and partial-gravity environments in rats.

Sports Med Health Sci. 2023 Sep 12.

<https://doi.org/10.1016/j.smhs.2023.09.002>

Journal Impact Factor: Not available for this journal

58

Roychoudhry S, Sageman-Furnas K, Wolverton C, Grones P, Tan S, Molnár G, De Angelis M, Goodman HL, Capstaff N, Lloyd JPB, Mullen J, Hangarter R, Friml J, Kepinski S.

Antigravitropic PIN polarization maintains non-vertical growth in lateral roots.

Nat Plants. 2023 Sep 4.

<https://pubmed.ncbi.nlm.nih.gov/37666965>

Journal Impact Factor: 18.0

59

Sanders LM, Scott RT, Yang JH, Qutub AA, Garcia Martin H, Berrios DC, Hastings JJA, Rask J, Mackintosh G, Hoarfrost AL, Chalk S, Kalantari J, Khezeli K, Antonson EL, Babdor J, Barker R, Baranzini SE, Beheshti A, Delgado-Aparicio GM, Glicksberg BS, Greene CS, Haendel M, Hamid AA, Heller P, Jamieson D, Jarvis KJ, Komarova SV, Komorowski M, Kothiyal P, Mahabal A, Manor U, Mason CE, Matar M, Mias GI, Miller J, Myers JG, Nelson C, Oribello J, Park S-m, Parsons-Wingerter P, Prabhu RK, Reynolds RJ, Saravia-Butler A, Saria S, Sawyer A, Singh NK, Snyder M, Soboczenski F, Soman K, Theriot CA, Van Valen D, Venkateswaran K, Warren L, Worthey L, Zitnik M, Costes SV.

Biological research and self-driving labs in deep space supported by artificial intelligence.

Nat Mach Intell. 2023 Mar 23;5:208-19. Review.

<https://doi.org/10.1038/s42256-023-00618-4>

Journal Impact Factor: 25.898

60

Santomartino R, Averesch NJH, Bhuiyan M, Cockell CS, Colangelo J, Gumulya Y, Lehner B, Lopez-Ayala I, McMahon S, Mohanty A, Santa Maria SR, Urbaniak C, Volger R, Yang J, Zea L.

Toward sustainable space exploration: A roadmap for harnessing the power of microorganisms.

Nat Commun. 2023 Mar 21;14(1):1391. Review.

<https://pubmed.ncbi.nlm.nih.gov/36944638>

Journal Impact Factor: 17.69

61

Saravia-Butler AM, Schisler JC, Taylor D, Beheshti A, Butler D, Meydan C, Foox J, Hernandez K, Mozsary C, Mason CE, Meller R.

Host transcriptional responses in nasal swabs identifies potential SARS-CoV-2 infection in PCR negative patients.

iScience. 2022 Oct 7;105310.

<https://pubmed.ncbi.nlm.nih.gov/36246576>

Journal Impact Factor: 6.107

62

Sattgast LH, Wong CP, Branscum AJ, Olson DA, Aguirre-Burk AM, Iwaniec UT, Turner RT.
Small changes in thermoregulation influence cancellous bone turnover balance in distal femur metaphysis in growing female mice.

Bone Rep. 2023 Jun;18:101675.

<https://doi.org/10.1016/j.bonr.2023.101675>

Journal Impact Factor: 3.713

63

Shaka S, Carpo N, Tran V, Cepeda C, Espinosa-Jeffrey A.
Space microgravity alters neural stem cell division: Implications for brain cancer research on Earth and in space.

Int J Mol Sci. 2022 Nov 18;23(22):14320.

<https://pubmed.ncbi.nlm.nih.gov/36430810>

Journal Impact Factor: 6.208

64

Sharma P, Dwivedi R, Ray P, Shukla J, Pomin VH, Tandon R.
Inhibition of cytomegalovirus by *Pentacta pygmaea* fucosylated chondroitin sulfate depends on its molecular weight.

Viruses. 2023 Mar 28;15(4):859.

<https://doi.org/10.3390/v15040859>

Journal Impact Factor: 5.818

65

Siems K, Müller DW, Maertens L, Ahmed A, Van Houdt R, Mancinelli RL, Baur S, Brix K, Kautenburger R, Caplin N, Krause J, Demets R, Vukich M, Tortora A, Roesch C, Holland G, Laue M, Mücklich F, Moeller R.

Testing laser-structured antimicrobial surfaces under space conditions: The design of the ISS experiment BIOFILMS.

Front Space Technol. 2022 Jan 3;2:773244.

<https://doi.org/10.3389/frspt.2021.773244>

Journal Impact Factor: Not available for this journal

66

Simpson AC, Eedara VVR, Singh NK, Damle N, Parker CW, Karouia F, Mason CE, Venkateswaran K.

Comparative genomic analysis of *Cohnella hashimotonis* sp. nov. isolated from the International Space Station.

Front Microbiol. 2023 Jun 15;14:1166013.

<https://doi.org/10.3389/fmicb.2023.1166013>

Journal Impact Factor: 6.064

67

Singh NK, Wood JM, Patane J, Moura LMS, Lombardino J, Setubal JC, Venkateswaran K. **Characterization of metagenome-assembled genomes from the International Space Station.** Microbiome. 2023 Jun 1;11:125.
<https://pubmed.ncbi.nlm.nih.gov/37264385>
Journal Impact Factor: 16.837

68

Soni P, Anupom T, Lesanpezeski L, Rahman M, Hewitt JE, Vellone M, Stodieck L, Blawdziewicz J, Szewczyk NJ, Vanapalli SA. **Microfluidics-integrated spaceflight hardware for measuring muscle strength of *Caenorhabditis elegans* on the International Space Station.** npj Microgravity. 2022 Nov 7;8:50.
<https://doi.org/10.1038/s41526-022-00241-4>
Journal Impact Factor: 4.97

69

Soundararajan M, Paddock MB, Dougherty M, Jones HW, Hogan JA, Donovan FM, Galazka JM, Settles AM. **Theoretical design of a space bioprocessing system to produce recombinant proteins.** npj Microgravity. 2023 Sep 16;9(1):78.
<https://pubmed.ncbi.nlm.nih.gov/37717090>
Journal Impact Factor: 5.1

70

Su S-H, Levine HG, Masson PH. ***Brachypodium distachyon* seedlings display accession-specific morphological and transcriptomic responses to the microgravity environment of the International Space Station.** Life. 2023 Feb 23;13(3):626.
<https://doi.org/10.3390/life13030626>
Journal Impact Factor: 3.253

71

Su SH, Moen A, Groskopf RM, Baldwin KL, Vesperman B, Masson PH. **Low-speed clinorotation of *Brachypodium distachyon* and *Arabidopsis thaliana* seedlings triggers root tip curvatures that are reminiscent of gravitropism.** Int J Mol Sci. 2023 Jan 12;24(2):1540.
<https://pubmed.ncbi.nlm.nih.gov/36675054>
Journal Impact Factor: 6.208

72

Tichy ED, Lee JH, Li G, Estep KN, Brad Johnson F, Mourkioti F.

Impacts of radiation exposure, hindlimb unloading, and recovery on murine skeletal muscle cell telomere length.

npj Microgravity. 2023 Sep 15;9(1):76.

<https://pubmed.ncbi.nlm.nih.gov/37714858>

Journal Impact Factor: 5.1

73

Tierney BT, Singh NK, Simpson AC, Hujer AM, Bonomo RA, Mason CE, Venkateswaran K.

Multidrug-resistant *Acinetobacter pittii* is adapting to and exhibiting potential succession aboard the International Space Station.

Microbiome. 2022 Dec 12;10:210.

<https://pubmed.ncbi.nlm.nih.gov/36503581>

Journal Impact Factor: 16.837

74

Tolsma JS, Torres JJ, Richards JT, Perera IY, J. Doherty CJ.

Evaluating the effects of the circadian clock and time of day on plant gravitropic responses.

Methods Mol Biol. 2022 Oct 14;2368:301-19. (Plant Gravitropism: Methods and Protocols.).

<https://pubmed.ncbi.nlm.nih.gov/34647263>

Journal Impact Factor: Not applicable to this publication

75

Tran V, Carpo N, Cepeda C, Espinosa-Jeffrey A.

Oligodendrocyte progenitors display enhanced proliferation and autophagy after spaceflight.

Biomolecules. 2023 Jan 17;13(2):201.

<https://doi.org/10.3390/biom13020201>

Journal Impact Factor: 6.064

76

Turner RT, Nesser KL, Philbrick KA, Wong CP, Olson DA, Branscum AJ, Iwaniec UT.

Leptin and environmental temperature as determinants of bone marrow adiposity in female mice.

Front Endocrinol. 2022 Oct 6;13:959743.

<https://doi.org/10.3389/fendo.2022.959743>

Journal Impact Factor: 6.055

77

Veliz AL, Mamoun L, Hughes L, Vega R, Holmes B, Monteon A, Bray J, Pecaut MJ, Kearns-Jonker M.

Transcriptomic effects on the mouse heart following 30 days on the International Space Station.

Biomolecules. 2023 Feb 15;13(2):371.

<https://doi.org/10.3390/biom13020371>

Journal Impact Factor: 6.064

78

Vergnes L, Foucaud B, Cepeda C, Espinosa-Jeffrey A.

Metabolomics profile of the secretome of space-flown oligodendrocytes.

Cells. 2023 Sep 11;12(18):2249.

<https://doi.org/10.3390/cells12182249>

Journal Impact Factor: 6.0

79

Vintila AR, Slade L, Cooke M, Willis CRG, Torregrossa R, Rahman M, Anupom T, Vanapalli SA, Gaffney CJ, Gharahdaghi N, Szabo C, Szewczyk NJ, Whiteman M, Etheridge T.

Mitochondrial sulfide promotes life span and health span through distinct mechanisms in developing versus adult treated *Caenorhabditis elegans*.

Proc Natl Acad Sci USA. 2023 Aug 8;120(32):e2216141120. Online ahead of print.

<https://pubmed.ncbi.nlm.nih.gov/37523525>

Journal Impact Factor: 11.1

80

Weng Y, Han S, Sekyi MT, Su T, Mattis AN, Chang TT.

Self-assembled Matrigel-free iPSC-derived liver organoids demonstrate wide-ranging highly-differentiated liver functions.

Stem Cells. 2022 Dec 27.

<https://pubmed.ncbi.nlm.nih.gov/36573434>

Journal Impact Factor: 5.845

81

Wesolowski LT, Simons JL, Semanchik PL, Othman MA, Kim J-H, Lawler JM, Kamal KY, White-Springer SH.

The impact of SRT2104 on skeletal muscle mitochondrial function, redox biology, and loss of muscle mass in hindlimb unloaded rats.

Int J Mol Sci. 2023 Jul 6;24(13):11135.

<https://doi.org/10.3390/ijms241311135>

Journal Impact Factor: 5.6

82

Winkelmaier G, Jabbari K, Chien LC, Grabham P, Parvin B, Pluth J.

Influence of simulated microgravity on mammary epithelial cells grown as 2D and 3D cultures.

Int J Mol Sci. 2023 Apr 20;24(8):7615.

<https://pubmed.ncbi.nlm.nih.gov/37108776>

Journal Impact Factor: 6.208

83

Wong CP, Branscum AJ, Fichter AR, Sargent J, Iwaniec UT, Turner RT.

Cold stress during room temperature housing alters skeletal response to simulated microgravity (hindlimb unloading) in growing female C57BL6 mice.

Biochimie. 2022 Dec 28.

<https://pubmed.ncbi.nlm.nih.gov/36584865>

Note: Hindlimb unloading study.

Journal Impact Factor: 6.9

84

Wong CP, Iwaniec UT, Turner RT.

Brown adipose tissue but not tibia exhibits a dramatic response to acute reduction in environmental temperature in growing male mice.

Bone Rep. 2023 Dec 19;101706.

<https://doi.org/10.1016/j.bonr.2023.101706>

Journal Impact Factor: 2.5

85

Yadav SK, Gawargi FI, Hasan MH, Tandon R, Upton JW, Mishra PK.

Differential effects of CMV [cytomegalovirus] infection on the viability of cardiac cells.

Cell Death Discov. 2023 Apr 3;9:111.

<https://pubmed.ncbi.nlm.nih.gov/37012234>

Journal Impact Factor: 7.109

86

Yang J, Mathew IE, Rhein H, Barker R, Guo Q, Brunello L, Loreti E, Barkla BJ, Gilroy S, Perata P, Hirschi KD.

The vacuolar H⁺/Ca transporter CAX1 participates in submergence and anoxia stress responses.

Plant Physiol. 2022 Aug 16;kiac375.

<https://pubmed.ncbi.nlm.nih.gov/35972350>

Journal Impact Factor: 8.005

87

Zhang Y, Story M, Yesitla S, Wang X, Scully RR, Theriot C, Wu H, Ryder VE, Lam CW.

Persistent changes in expression of genes involved in inflammation and fibrosis in the lungs of rats exposed to airborne lunar dust.

Inhal Toxicol. 2023 Mar 26;1-18.

<https://pubmed.ncbi.nlm.nih.gov/36966416>

Journal Impact Factor: 3.011

88

Zupanska AK, Arena C, Zuñiga GE, Casanova-Katny A, Turnbull JD, Bravo LA, Ramos P, Sun H, Shishov VV.

Editorial: Revisiting the limits of plant life - plant adaptations to extreme terrestrial environments relating to astrobiology and space biology.

Front Plant Sci. 2023 Aug 17;14:1267183.

<https://doi.org/10.3389/fpls.2023.1267183>

Journal Impact Factor: 5.6

For additional information, contact: Biological and Physical Sciences Division, National Aeronautics and Space Administration <https://science.nasa.gov/biological-physical>

October 2023