

KIRILL GRIGOREV, PH.D.



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scholar.google.com/citations?user=Mn83Ny0AAAAJ

DATA SCIENCE, GENOMICS DATABASES, SPACE GENOMICS AND PHYSIOLOGY, COMPUTATIONAL GENETICS, GENOMICS ALGORITHMS, TELOMERES, GENOME ASSEMBLY



STAFF SCIENTIST

NASA Open Science Data Repository (NASA OSDR) | osdr.nasa.gov

RadLab Working Group Steering Committee (RLWG-SC)

Blue Marble Space Institute of Science (BMSIS) | bmsis.org

Ph.D. in Physiology, Biophysics, and Systems Biology, Weill Cornell Medicine

M.S. in Biology, University of Puerto Rico

B.S. in Biotechnology, Saint Petersburg Chemical and Pharmaceutical Academy

PRINCIPAL AREAS OF ACADEMIC INTEREST

Genomics and physiology of spaceflight
Biological and radiological database and API development
Translational and personalized genomics
Genomics algorithms

PRINCIPAL SKILLSET

Genomic data analysis
Advanced Python (inc. SciPy stack, Cython)
Lua/LuaJIT, JavaScript, R, C
Graph and numerical algorithms

RESEARCH SUMMARY

- 2023 – ... **Blue Marble Space Institute of Science** and **NASA Open Science Data Repository**
Development of databases and analysis platforms for space biology and telemetry data to further space exploration.
Fostering collaborations with national and international institutions and data providers.
Enabling technologies for open science data integration and analysis [1, 2, 3].
Principal developer of **RadLab** and **GeneLab Open API**.
Member of the **RadLab Working Group Steering Committee**.
RadLab: visualization.osdr.nasa.gov/radlab
Environmental Data Application: visualization.osdr.nasa.gov/eda
GeneLab Open API: visualization.genelab.nasa.gov/GLOpenAPI
- 2018 – 2023 **GeneLab Visualization Working Group**
Development of an analysis platform for space genomics data [6, 9, 10].
- 2018 **New York Genome Center**
Epigenetic evolution of cancers, phylogenetics algorithms [12].
- 2017 – 2023 **Weill Cornell Medicine, Institute for Computational Biomedicine, Mason Lab**
Novel discoveries in telomere biology and bioinformatics [4, 5].
Quantification of effects of spaceflight on human biology [4, 7, 8].
Sequence analysis in theoretical and translational applications [11, 13].
- 2015 – 2017 **University of Puerto Rico, Caribbean Genome Center**
Methods of genome assembly, evolutionary genetics and conservation strategies of endangered Caribbean species [14, 15, 17].
- 2014 – 2015 **Dobzhansky Center for Genome Bioinformatics**
Methods of genome assembly, GWAS visualization, human epigenetics [16].

PUBLICATIONS

1. AEU Acuna *et al.* **NASA GeneLab Multi-study Visualization Portal**. In Annual Meeting of the American Society for Gravitational and Space Research (2023). ntrs.nasa.gov/citations/20230009477
2. K Grigorev *et al.* **RadLab and the Environmental Data Application Dashboard: Graphical and Programming Interfaces for Interrogation of Space Telemetry Data**. In Annual Meeting of the American Society for Gravitational and Space Research (2023). ntrs.nasa.gov/citations/20230009560
3. SV Costes, K Grigorev, J Miller. **RadLab Platform: Investigating Space Radiation**. In 26th Workshop on Radiation Monitoring and Investigation in Space Science (WRMISS) (2023). ntrs.nasa.gov/citations/20230012460
4. JSG Medina *et al.* **Genome and Clonal Hematopoiesis Stability Contrasts with Immune, cfDNA, Mitochondrial, and Telomere Length Changes to Short Duration Spaceflight**. *Under review in Nature Portfolio*. [10.21203/rs.3.rs-2928049/v1](https://doi.org/10.21203/rs.3.rs-2928049/v1)
5. K Grigorev, J Foox *et al.* **Haplotype diversity and sequence heterogeneity of human telomeres**. *Genome Research* 31 (7), 1269. [10.1101/gr.274639.120](https://doi.org/10.1101/gr.274639.120)
6. D Berrios *et al.* **NASA GeneLab: interfaces for the exploration of space omics data**. *Nucleic Acids Research* 49 (D1), D1515. [10.1093/nar/gkaa887](https://doi.org/10.1093/nar/gkaa887)
7. J Luxton *et al.* **Temporal Telomere and DNA Damage Responses in the Space Radiation Environment**. *Cell Reports* 33 (10), 108435. [10.1016/j.celrep.2020.108435](https://doi.org/10.1016/j.celrep.2020.108435)
8. D Bezdan *et al.* **Cell-free DNA (cfDNA) and exosome profiling from a year-long human spaceflight reveals circulating biomarkers**. *IScience* 23 (12), 101844. [10.1016/j.isci.2020.101844](https://doi.org/10.1016/j.isci.2020.101844)
9. R Scott *et al.* **Advancing the Integration of Biosciences Data Sharing to Further Enable Space Exploration**. *Cell Reports* 33 (10), 108441. [10.1016/j.celrep.2020.108441](https://doi.org/10.1016/j.celrep.2020.108441)
10. D Berrios *et al.* **Visualizing Omics Data from Spaceflight Samples using the NASA GeneLab Platform**. In Proceedings of the 12th International Conference on Bioinformatics and Computational Biology (Vol. 70, pp. 89-98). [10.29007/rh7n](https://doi.org/10.29007/rh7n)
11. C Westover *et al.* **Engineering Radioprotective Human Cells Using the Tardigrade Damage Suppressor Protein, DSUP**. *bioRxiv* (2020). [10.1101/2020.11.10.373571](https://doi.org/10.1101/2020.11.10.373571)
12. F Gaiti, R Chaligne, H Gu *et al.* **Epigenetic evolution and lineage histories of chronic lymphocytic leukaemia**. *Nature* 569 (7757), 576. [10.1038/s41586-019-1198-z](https://doi.org/10.1038/s41586-019-1198-z)
13. ABR McIntyre *et al.* **Single-molecule sequencing detection of N6-methyladenine in microbial reference materials**. *Nature Communications* 10 (1), 579. [10.1038/s41467-019-08289-9](https://doi.org/10.1038/s41467-019-08289-9)
14. S Kolchanova, S Kliver *et al.* **Genomes of three closely related Caribbean amazons provide insight for species history and conservation**. *Genes* 10 (1), 54. [10.3390/genes10010054](https://doi.org/10.3390/genes10010054)
15. K Grigorev, S Kliver *et al.* **Innovative assembly strategy contributes to understanding the evolution and conservation genetics of the endangered *Solenodon paradoxus* from the island of Hispaniola**. *GigaScience* 7 (6), giy025. [10.1093/gigascience/giy025](https://doi.org/10.1093/gigascience/giy025)
16. OY Naumova *et al.* **Developmental dynamics of the epigenome: a longitudinal study of three toddlers**. *Neurotoxicology and teratology* 66, 125-131. [10.1016/j.ntt.2017.12.006](https://doi.org/10.1016/j.ntt.2017.12.006)
17. AL Brandt, K Grigorev *et al.* **Mitogenomic sequences support a north–south subspecies subdivision within *Solenodon paradoxus***. *Mitochondrial DNA Part A* 28 (5), 662-670. [10.3109/24701394.2016.1167891](https://doi.org/10.3109/24701394.2016.1167891)

PUBLIC SPEAKING, CONFERENCES, ROUND TABLES

- 2024 **RadLab: Graphical and Programming Interfaces for Interrogation of Space Telemetry Data**
NASA Human Research Program Investigators' Workshop, Galveston, TX
(Accepted, scheduled)
- 2023 **RadLab and the Environmental Data Application Dashboard: Graphical and Programming Interfaces for Interrogation of Space Telemetry Data**
Annual Meeting of the American Society for Gravitational and Space Research, Washington, DC
- 2023 **RadLab Platform: Investigating Space Radiation**
26th Workshop on Radiation Monitoring and Investigation in Space Science (WRMISS)
Virtual (Rome, Italy – pre-recorded talk shown as part of presentation)
- 2022 **Unimizers: a novel approach to alignment of low-complexity genomic sequences**
7th Annual MetaSUB Conference, Miami, FL
- 2020 **GeneLab sequencing data analysis and visualization**
USRA / NASA Ames Research Center
Virtual (Moffett Field, CA – teleconference)
- 2019 **Comparative circadian transcriptomics: novel and conserved features of the mammalian pineal gland**
Oakland University Genomics Symposium, Oakland University, MI
- 2019 **GeneLab Visualization Working Group meeting**
35th Annual Meeting of ASGSR, Denver, CO
- 2019 **GeneLab visualization workshop**
Broad Institute, Cambridge, MA
- 2017 **Development of robust bioinformatics pipelines**
Fifth annual Bioinformatics Summer School, Moscow, Russia
- 2017 **Genomics and conservation of the Hispaniolan Solenodon**
IX Caribbean Biodiversity Congress, Santo Domingo, Dominican Republic

NOTES

- * The "Specialist" degree from the Saint Petersburg Chemical and Pharmaceutical Academy is a five-year undergraduate degree conferred in ex-USSR countries and is equivalent to a B.S.
- ** "Saint Petersburg Chemical and Pharmaceutical Academy" reflects the name of the institution at the time of graduation. Several variations of the name exist in English translations; and the institution was renamed from an Academy to a University in the years after the graduation.