

Somatic Mutation in Space/NASA Ames

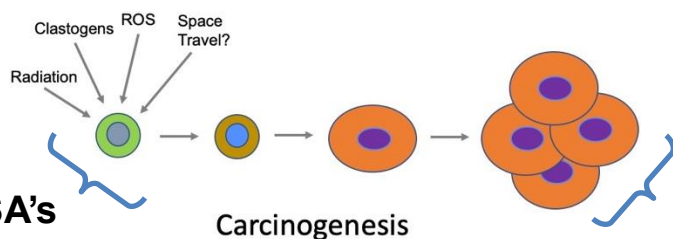
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<https://www.nasa.gov/ames/space-biosciences/space-biosciences-research-branch-staff/>

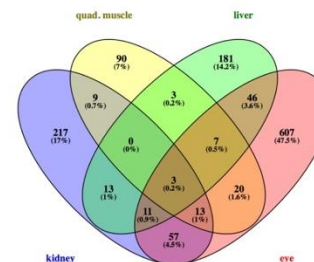
What do you study?

We study the rate of somatic mutation accumulation in space, compared to Earth, with a view toward developing a new tool for cancer risk assessment.



NASA's focus

The World



Somatic mutation is greatly increased in mice on the ISS versus ground controls. Our analytical technique relies on custom software created at NASA Ames and the high-performance compute power of the **NASA Ames Supercomputer (NAS)**.

Funding

NASA Human Research Program
HERO Award (2024):

“Somatic Mutation During Spaceflight: Quantifying a Critical Process Relevant to the Lifetime Risk of Cancer Risk in Astronauts”

Relevant Publication

“Deciphering Medical Risk with High-Performance Computing,” *Medical Design Briefs*, March 1, 2021

How can you (or your project/organization) apply your expertise and capabilities to cancer research?

- We believe that somatic mutation analysis may serve as a new tool for cancer risk assessment that may complement other cancer risk prediction methods currently in use.

Ideas for future NASA-UC collaboration

- Data-mining of existing RNA-Seq datasets represents **low-hanging fruit** that would be ideal for collaboration.
- Somatic mutation analysis may have an important role to play in longitudinal studies of cancer development in selected populations.