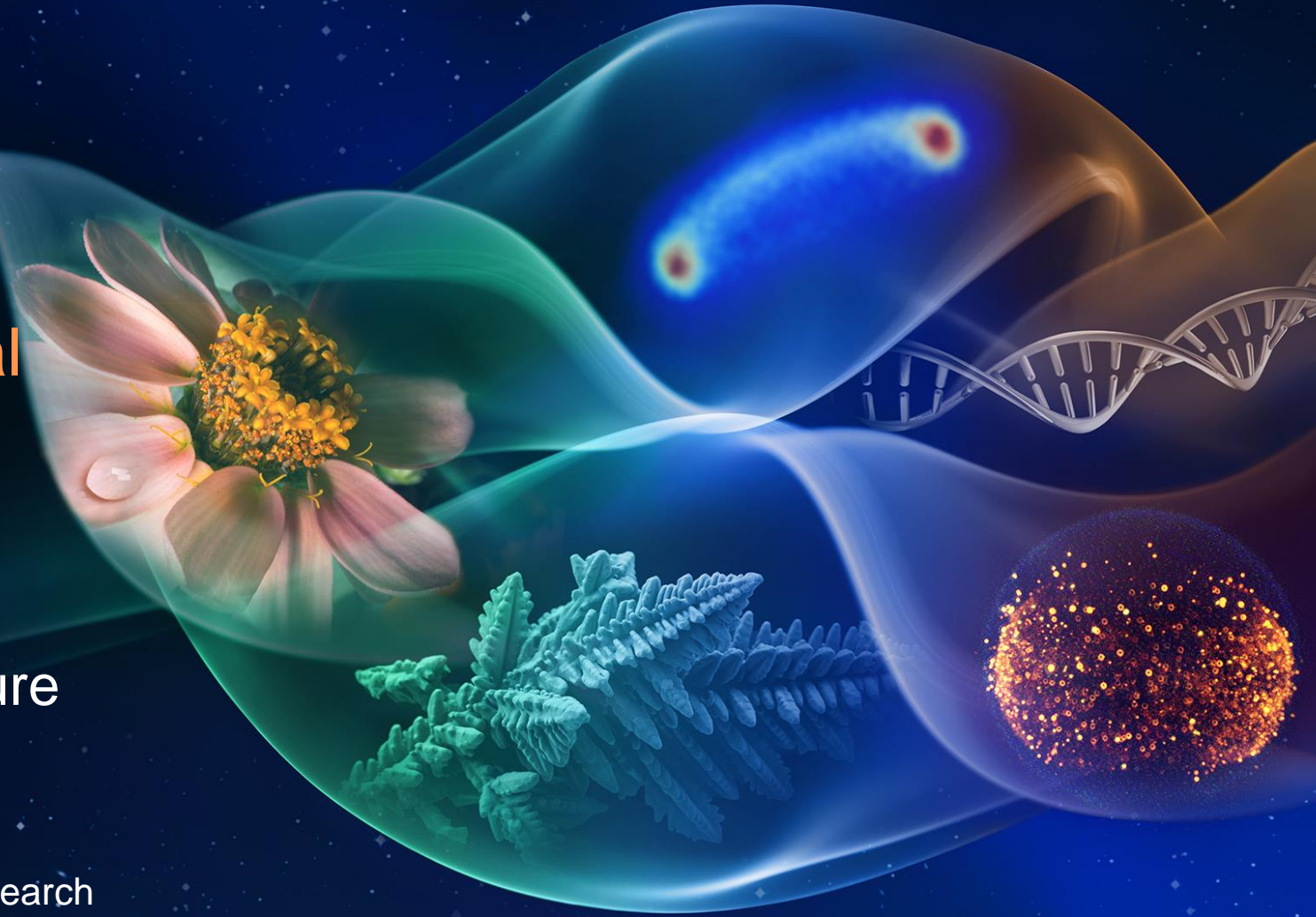




Biological and Physical Sciences Advisory Committee (BPAC) November 15, 2022

BPS: Next, Current & Future Generations

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Science Mission Directorate



SMD IDEA STRATEGIC PRIORITIES 2022 - 2023

Inclusion, Diversity, Equity, and Accessibility in Science

1. Expand entry pipelines, career advancement, and leadership access. Transform from the inside out.

SMD-wide, shared commitment to widening the path to entry and leadership for marginalized groups

Host learning experiences and share resources focused on how to avoid subtle biases

Full-scale, human-centered, design-focused evaluation to document the paths decision-making roles

2. Develop a robust internal infrastructure to ensure synergy and alignment in IDEA implementation.

Synchronized IDEA Working Group team

Clear understanding of actions and best practices across subgroups

SMD-wide awareness of subgroup roles and focus areas and collaboration with division teams

3. Ensure that all team members can meet the demands of their work and raise challenges safely. Commit to accessibility in all applications

Analyze the SMD-specific climate survey and cross-reference the Federal Employee Viewpoint survey

Develop a SMD-specific accessibility scorecard based on interdisciplinary existing standards

Launch the anonymous feedback box

4. Bring the community in to SMD to ensure NASA's goal of building a science team reflecting the nation and living the Administration's priorities.

Shared understanding of optimal diverse profile for SMD and science community

Clarified opportunities, application processes, and criteria for joining SMD'

Networking opportunities

5. Strengthen and forge symbiotic relationships with underrepresented communities

Continued fair, consistent, symbiotic relationship building with underrepresented groups

Establish a co-created HBCU - engagement model with representatives from each SMD division

Continue to review the (ROSES) and Principal Investigator Launchpad

INSIDE SMD

WITH COMMUNITY

NEXT Generation

Who is BPS's Pipeline and how
are we cultivating it?



Education Opportunities: K-12



Drop Tower Challenge

Program focuses on grades 8-12

***BPS led program**

<https://www1.grc.nasa.gov/space/education-outreach/drop-tower-competition/>

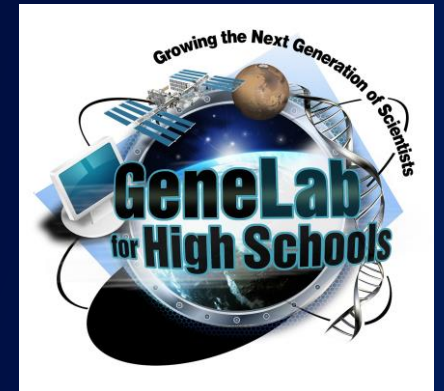


EURECA

Program focuses on underserved, underrepresented high schools – over 50% Title 1 schools

***BPS led training program in partnership with INSPIRESS & UAH**

<https://inspiress.org/>



GeneLab for High Schools

High school students and teachers

***BPS led training program**

<https://www.nasa.gov/am-es/genelab-for-high-schools>

Undergraduate & Graduate Training Opportunities



SLSTP Summer Internship

Undergraduates

<https://www.nasa.gov/ames/research/space-life-sciences-training-program>



NASA Internships NASA International Internships

Undergraduates, graduate students

<https://intern.nasa.gov/>



EPSCoR

Undergraduates, graduate students

<https://www.nasa.gov/stem/epscor/gateway/index.html>



MUREP

Undergraduates, graduate students

<https://www.nasa.gov/stem/murep/home/index.html>



Future Investigators in NASA Earth and Space Science and Technology

FINESST

Graduate students

NSPIRES: ROSES E.5

Diversity, Equity & Inclusion



EURECA

Program focuses on underserved, underrepresented – over 50% Title 1 schools

**BPS led training program in partnership with INSPIRESS & UAH*

SMD BRIDGE PROGRAM

Undergraduates

The SMD Bridge Program is a new initiative designed to boost diversity, equity, inclusion and accessibility within the NASA workforce and within the US science and engineering community.

Focus:

Minority Serving Institutions (MSI)

- Historically Black Colleges & Universities (HBCU)
- Tribal Colleges & Universities (TCU)
- *Including primarily undergraduate institutions and PhD granting universities*



MUREP

Undergraduates, graduate students

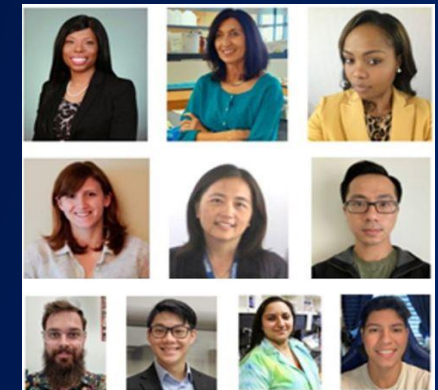
<https://www.nasa.gov/stem/murep/home/index.html>



EPSCoR

Undergraduates, graduate students

<https://www.nasa.gov/stem/epscor/gateway/index.html>



*GL4U Bootcamp

Undergraduates, graduate students, professors

<https://genelab.nasa.gov/GL4U2022>

**GeneLab 4 University is a BPS led training program in partnership with JPL*



CURRENT Generation

How is BPS cultivating its current science communities?

Post-Graduate Training Opportunities



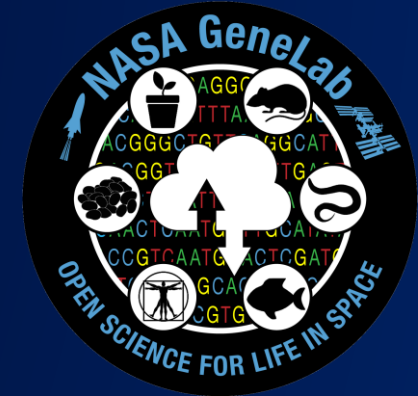
Blue Marble Young
Scientist Program &
Visiting Scholars
Post-baccalaureate
<https://www.bmsis.org/ysp/>



NASA Postdoctoral
Program (NPP)
<https://npp.orau.org/#main-content>



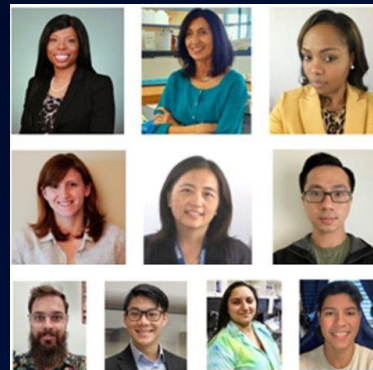
NASA Citizen Science
ROSES F.9 Citizen Science
Seed Funding Program



NASA GeneLab Analysis
Working Groups
<https://genelab.nasa.gov/>



Spaceflight Technology,
Applications, and
Research (STAR)
Principal investigators,
researchers, postdoctoral
scholars
<https://science.nasa.gov/biological-physical/programs/star>



GL4U: RNAseq
Educator
Bootcamp
<https://genelab.nasa.gov/GL4U2022>



GeneLab for High
Schools
Educators
<https://www.nasa.gov/am-es/genelab-for-high-schools>

Current Development Opportunities for BPS Scientists

★ Pilot Rotational Program for Scientists

- Allow scientists to temporarily rotate to another organization to broaden knowledge, skills, and perspectives
- Full- or part-time, virtual, on-site or a hybrid approach
- Rotation lasts six months to one year, based on the needs of the host organization and the nature of the opportunity
- Benefits individuals who participate, their host organization, and their home
- Pilot limited to Civil Servant Scientists with the longer-term goal to explore options to possibly open the program to non-Civil Servant Scientists

Conferences

- Scientists participate in conferences to share research activities and network outside of the agency
- Organize conferences to learn and share priority research topics with the science community

Leadership Development

- ★ • Virtual agency-led orientation for newly hired scientists
- ★ • Virtual series of “career opportunities” workshops for mid-career scientists
- ★ • Establish entry-level, part-time supervisory roles that are time-limited
- Seminars and formal training courses on leadership, management, technical writing etc. offered through APPEL

NASA's Career Path Tool

Click on any of the bars below to learn more about the science career tracks and their associated roles.



<https://sciencecareers.apps.nasa.gov/#/>

FUTURE Generation

How does BPS plan to
influence the future?





Future Training Concepts for NASA Scientists

- Advances in computing, data analytics, machine learning, artificial intelligence (AI), and biological engineering/techniques are accelerating the ability to understand biology
- BPS is exploring new training models to ensure NASA scientists are knowledgeable on the latest state-of-the-art methods and techniques being developed
 - BPS scientists receive training at leading academic & industry facilities
 - Critical for supporting CERISS and Artemis missions



Future Scientist Astronaut Missions

- Suborbital
 - Future crewed suborbital opportunities to do preliminary testing on hardware and experiment capabilities prior to LEO or beyond LEO flights
- SubC (Suborbital NASA Crewed)
 - Future *NASA* crewed suborbital opportunities
- PAM (Private Astronaut Missions)
 - Potential to partner with commercial entities to have private astronauts support BPS science in LEO
- SAM (Scientist Astronaut Missions)
 - Potential for specialized scientists to conduct BPS science in LEO



Conclusion

BPS:

Next, Current &
Future Generations

- Influenced by results from the 2023 Decadal Survey
- Promote the inclusion of members of historically underrepresented groups in science
- Foster open science by facilitating non-specialist access to databases
- Expand existing pipeline and create new education & outreach opportunities
- Develop virtual content for broader reach across communities
- Align with SMD IDEA Strategic Priorities

Thank you!

