

BIOASTRA



# 2025 IMPACT REPORT

A revolution in healthcare, on  
Earth & beyond

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# 1 LETTER FROM THE CEO



**SAVI  
GLOWE**  
Co-Founder & CEO, BioAstra

In 2025, BioAstra reached a turning point. For the first time, we had the resources to move beyond a founder-led effort and operate as a real team. That changed how the work felt and how it moved. We were able to take ideas we had been carrying for years and start turning them into shared work, owned across people rather than held by any one person.

That increase in capacity made a difference immediately. Partnerships we had been building carefully over time were finally ready to be public. Programs that once had to move one step at a time could advance in parallel. The work became more concrete, more visible, and more demanding. It also became more real. Expectations rose, coordination mattered more,

and progress depended on follow-through in a way it hadn't before.

This year would not have been possible without the people who chose to support BioAstra as it grew more complex. I am deeply grateful to our donors, advisors, collaborators, and partners who believed in the mission early and stayed engaged as the work matured. What mattered most in 2025 was conviction and having supporters who understand that this work isn't just about quick wins, but about building something that will last long after we're gone.

As we look ahead, BioAstra enters the coming year with a clearer sense of responsibility and focus. The work is no longer hypothetical. We know what needs to be built, and we know what it will take to build it. The year ahead will be about execution and accountability, and we approach it with confidence in our team and deep respect for the trust placed in us.

Thank you for being part of this work and for helping shape what comes next.

**“The work is no longer hypothetical.”**



## 2 EXECUTIVE SUMMARY

In 2025, BioAstra strengthened its role as a scientific organization using space and extreme environments to answer urgent questions about human health. The year marked a shift from concept-building to execution. Across programs, BioAstra focused on building the partnerships, infrastructure, and governance required to support credible, ethically grounded research at scale.

Significant progress was made across BioAstra's core initiatives. **Twin Astra** was publicly launched as a campaign of crewed biomedical missions designed to study identical twins across spaceflight conditions. The program established early partnerships that enabled future research in low Earth orbit, cislunar space, and eventually interplanetary expeditions, laying the foundation for longitudinal human studies that cannot be conducted elsewhere.

BioAstra proudly joined the **Space Omics Medical Atlas** consortium as a clinical research enrollment site and the data coordination hub. BioAstra's role as steward of these sensitive longitudinal omics data lays the foundation for future research and discovery in cancer, aging, immune health, and human resilience. The SOMA Library at BioAstra emphasizes governance-first data access and ethical oversight as core infrastructure for global open science.

BioAstra completed its 3rd annual **Research Fellowship** training program in 2025, reinforcing our commitment to building a durable workforce for space and extreme-environment health research. Crew-3 convened an international cohort of early-career scientists and engineers working across space biology, medicine, and systems engineering. Fellows contributed directly to BioAstra programs, gaining hands-on experience with impactful research questions, real-world constraints, and mission-driven science. Several projects were presented at the American Society for Gravitational and Space Research (ASGSR), reflecting BioAstra's emphasis on producing credible scientific work rather than a standalone training exercise.

BioAstra advanced planning of the **Extremophile Expedition Series. E1 Bikini Atoll** is moving into expedition readiness for a 2026 field campaign to study genetic adaptation to radiation exposure. This effort will impact our understanding of human health risks in deep space and help in the development of deep space countermeasures. In parallel, **ORBIT** continued to mature as a platform concept for delivering advanced medical capabilities in remote and disconnected environments, addressing real-world healthcare gaps while informing future spaceflight applications.

Translation also reached an important milestone with the public launch of **medAstra**, BioAstra's first venture initiative. Emerging from stealth, medAstra secured early investment and is advancing product applications spanning human spaceflight and post-surgical recovery. Initial clinical adoption marked the transition from research insight to real-world use.

Together, these efforts reflect BioAstra's integrated approach to advancing human health through rigorous science, responsible data stewardship, mission access, workforce development, and terrestrial translation. As BioAstra enters the coming year, the organization is positioned to scale thoughtfully while maintaining our commitment to ethics, scientific credibility, and long-term impact across healthcare on Earth and in space.



**Savi  
Glowe**

Chief Executive Officer



**Christopher  
Mason, PhD**

Chair



**Eliah  
Overbey, PhD**

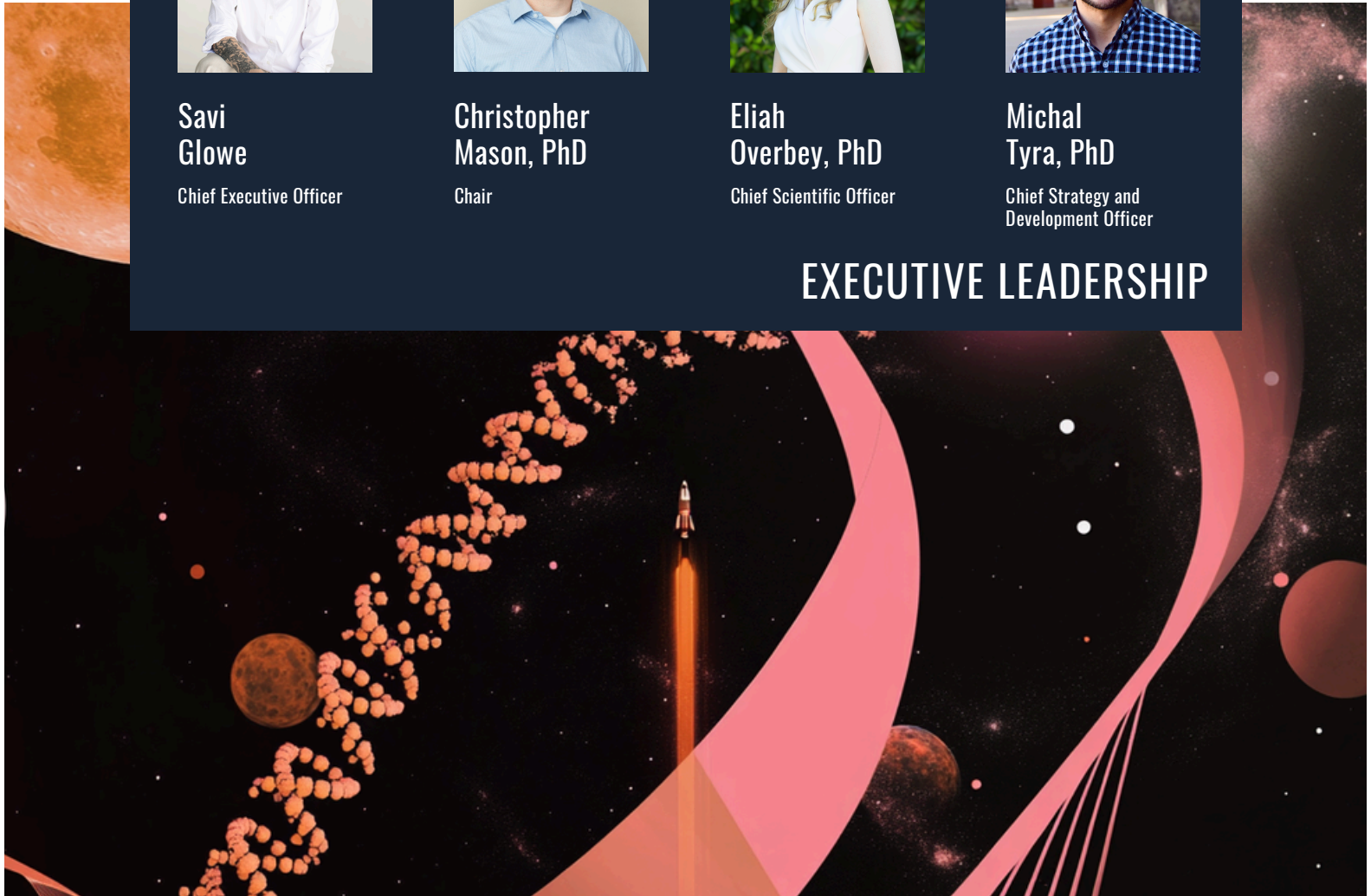
Chief Scientific Officer



**Michal  
Tyra, PhD**

Chief Strategy and  
Development Officer

## EXECUTIVE LEADERSHIP



# 3 PROGRAM SPOTLIGHTS



## 3.1 TWIN ASTRA

### Expanding the Multi-Planetary R&D Frontier

Twin Astra is a campaign of three crewed biomedical missions using identical twins—one in space, one on Earth—to isolate the molecular impacts of spaceflight. By studying how radiation and microgravity accelerate aging-related processes, the program will test countermeasures that inform long-duration astronaut health and advance treatment for age-related disease on Earth. Twin Astra integrates mission access, research partnerships, and translational pathways to support sustained biological investigation in LEO and deep space.

In February 2025, Twin Astra was publicly launched at The Explorer’s Club, convening leaders across aerospace, science, biotechnology, philanthropy, and investment. The launch served as the program’s first public milestone and a moment of alignment among stakeholders committed to advancing space-enabled biomedical research. Guest speakers included **Dr. Sian Proctor**, Inspiration4 Astronaut and geoscientist, and **John Shoffner**, Axiom-2 Astronaut and mission pilot, each offering perspective grounded in human spaceflight experience.

Following the launch, Twin Astra announced a collaboration with **Lockheed Martin** in support of the Twin Lunar mission, which will be the first crewed biomedical research mission to lunar orbit. The collaboration reinforces momentum toward cislunar research and signals growing confidence in the program’s direction.

Twin Astra also secured reservations with **Starlab Space** for a low Earth orbit mission, including a human seat and scientific payload capacity. Together, these partnerships strengthen the program’s position in the LEO and lunar research landscapes while supporting BioAstra’s broader research efforts and translational pathways.

“By harnessing space as a biomedical testing ground, Twin Astra will redefine our understanding of human resilience in extreme environments.”

- Dr. Christopher Mason, BioAstra Chair

## 3.2 SOMA



### Scaling Evidence and Insight

SOMA (the Space Omics Medical Atlas) is a global space omics research initiative that brings together clinical enrollment, data stewardship, and ethical governance to study how the human body responds to extreme environments. In 2025, BioAstra joined the SOMA consortium as a clinical research enrollment site and serves as the data coordination hub, stewarding sensitive, longitudinal omics data from astronauts and other high-risk populations. This work lays the foundation for future discovery in cancer, aging, immune health, and human resilience.

As federal investment in space life sciences contracts and legacy open-access infrastructure sunsets, BioAstra's role as SOMA's data steward has become increasingly important. Through the SOMA Library at BioAstra, we emphasize governance-first data access and ethical oversight as core infrastructure, ensuring the long-term integrity, security, and responsible use of these unique datasets. This approach supports future

research access across academia, government, and industry while maintaining participant trust.

This year SOMA advanced across multiple dimensions, including platform development, data governance, and mission integration. A significant contribution to this work came from **Alba Tull**, whose \$1 million gift provided flexible support to strengthen BioAstra's research infrastructure, with a primary emphasis on sustaining SOMA's stewardship, oversight, and coordination functions.

Together, these efforts position SOMA as a durable biomedical resource in development, using spaceflight as a high-impact model system to inform medicine on Earth while ensuring that the data entrusted to it are used responsibly and for maximum public benefit.

**"Giving researchers, entrepreneurs, and students access to SOMA data turns discovery into actionable progress for astronaut health."**

**- Dr. Eliah Overbey, BioAstra CSO**



## 3.3 RESEARCH FELLOWSHIPS

### Developing the Next Generation of Space-Biology Innovators

BioAstra's Research Fellowships provide immersive, hands-on training for students and early-career researchers working at the intersection of space medicine, health technology, and frontier biology. Now in its third year, the program is designed to give rising scientists the runway to engage directly with mission-driven research while building the skills and perspective needed to lead in high-stakes scientific environments.

The 2025 Crew-3 Research Fellowship brought together ten fellows from diverse scientific and healthcare backgrounds, representing France, India, Iran, Switzerland, and the United States. Over a 12-week, part-time program, fellows worked closely with BioAstra leadership, scientists, and engineers on research spanning space health, aerospace engineering, AI-driven diagnostics, operational medicine, and planetary

sustainability. Their work reflected the program's core aim: bridging research, innovation, and real-world impact across spaceflight and Earth-based medicine.

This year also marked a significant milestone for the program's growing scientific credibility. Three Crew-3 fellows were selected to present their work at the **American Society for Gravitational and Space Research** annual meeting in December. Their research pushed the frontier of space-enabled health, from molecular biology to AI-driven countermeasure design, underscoring a central insight of the fellowship: space is not a niche domain, but a platform for breakthroughs that can transform human health on Earth.

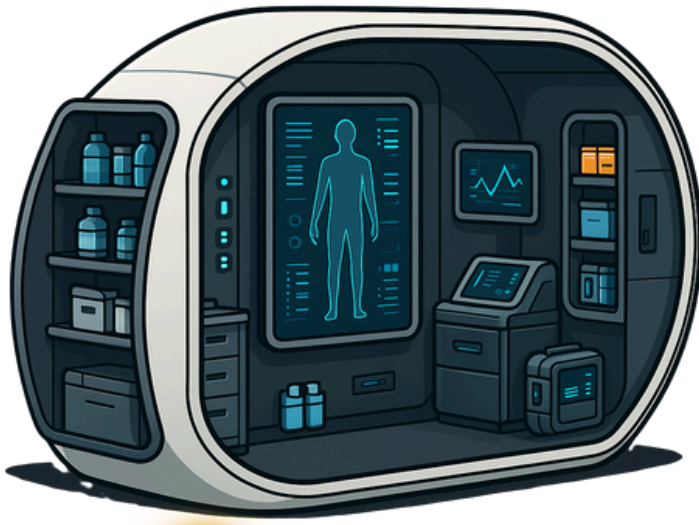
The Research Fellowship builds on a strong foundation: Crew-1 (2023) explored the pharmacogenomic landscape of spaceflight, while Crew-2 (2024) focused on making genomic protocols more accessible while identifying impactful drug and nutrition countermeasures. Crew-3 further expanded this scope, reflecting the program's continued evolution.

BioAstra extends its gratitude to Chief Scientific Officer & Fellowship Director Dr. Eliah Overbey and to the mentors whose guidance made this year's program possible.

**"Spending the summer at BioAstra has been inspiring, collaborative, and truly transformative. Being part of such a visionary community has shaped not only my research but also my growth as a scientist."**

**-Narges Zafari, Crew-3 Fellow**

## 3.4 ORBIT



### Access, On-Ramp, and Flight Readiness

ORBIT is a platform for deploying advanced medical care in extreme and remote environments where traditional healthcare infrastructure cannot operate. Designed as fully autonomous medical units, ORBIT integrates diagnostics, therapeutics, monitoring technologies, and AI-enabled decision support into modular, transportable systems. These units are intended to deliver adaptable, high-quality care anywhere—from disaster zones and remote communities to orbital habitats and future deep-space missions.

Rather than a single device, ORBIT is being developed as a mission-agnostic deployment framework. Its architecture enables rapid configuration of medical capabilities based on environmental constraints, clinical needs, and available resources, reducing operational complexity while increasing reliability in disconnected settings.

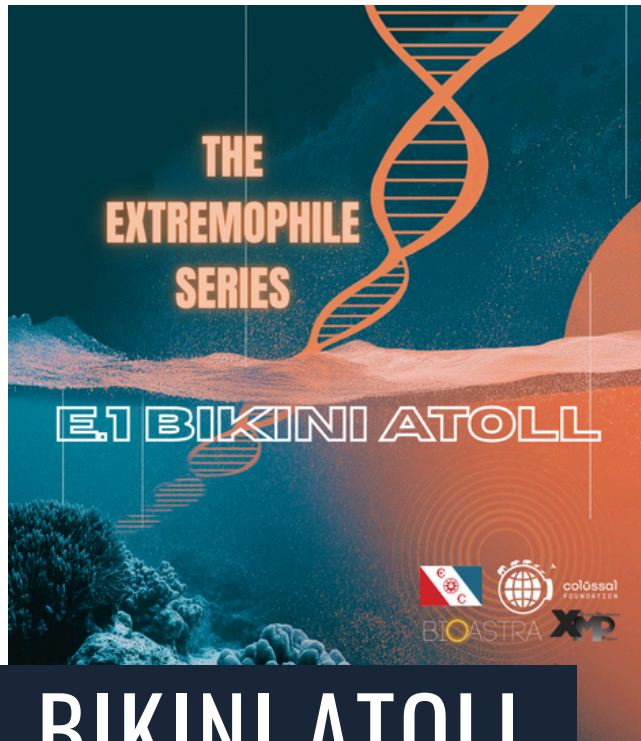
In 2025, ORBIT advanced its research foundation through contributions from the Research Fellowship program. Three Crew-3 fellows contributed ORBIT-specific work spanning dual-use military applications, humanitarian and disaster deployment models, and an inventory of biomedical technologies previously flown or validated in spaceflight and analog environments. One of these projects was presented at ASGSR, reinforcing the program's growing research foundation.

As development continues, ORBIT is being designed to integrate with BioAstra's broader ecosystem and will be tested during the Twin Astra missions, supporting future readiness across space and Earth-based care.

**"2025 has demonstrated that access to care has never been more critical; ORBIT is an answer to that demand."**

**- Hilary Wartinger, ORBIT Director**

# 4 EXPEDITIONS



## E.1 BIKINI ATOLL

### Expanding Biological Frontiers Through Extreme Environment Fieldwork

The Bikini Atoll Extremophile Initiative investigates radiation-resistant organisms thriving in one of Earth's most irradiated environments to uncover mechanisms of survival and adaptation. Located in Bikini Atoll, the site offers a rare natural experiment shaped by decades of radiation exposure. Insights from this work are expected to inform protective biotechnologies for astronauts, advance radiation therapies on Earth, and deepen understanding of biological resilience in extreme conditions, guided by ethical and community-engaged research.

In 2025, under the leadership of Co-Founder & Chairman, **Dr. Christopher Mason** and

supported by a generous donation from the **Colossal Foundation**, the initiative advanced from concept into active expedition planning. Scientific objectives were refined, research protocols outlined, and logistical coordination began in preparation for field deployment. A major milestone was reached with the securing of an expedition vessel, booked for **June 2026**, establishing a clear execution timeline and enabling downstream planning for sampling, analysis, and integration with BioAstra's broader research platforms.

Momentum for the initiative was further strengthened through a fundraising event held in October at **The Explorers Club**, bringing together supporters from the scientific, exploration, and philanthropic communities. The event helped build both financial and strategic support for the expedition and reinforced the importance of responsible exploration in historically and ethically complex environments.

As planning continues, the Bikini Atoll Extremophile Initiative is being developed with a strong commitment to ethical stewardship and community engagement, recognizing the enduring impact of nuclear testing on the Marshallese people. Findings from the expedition will feed into BioAstra's work across space health, synthetic biology, and radiation research, while contributing openly to the scientific community through shared data and publications.

Exploring life's  
capacity to adapt in  
Earth's most extreme  
environments

# 5 TRANSLATION & VENTURES



## MEDASTRA

### Translating Space-Enabled Biology to Real-World Solutions

medAstra is BioAstra's first venture to emerge from internal research and development, translating spaceflight-driven rigor into real-world medical systems. Originally developed to support astronauts operating in microgravity, medAstra brings aerospace-level reliability to healthcare environments where precision matters and failure carries high cost.

In 2025, medAstra exited stealth and launched publicly, marking a major milestone in BioAstra's translational pipeline. The company secured **\$500,000 in pre-seed investment from WorldQuant Foundry**, validating early demand for its approach and enabling full product development and readiness across both space

and Earth-based applications.

This year, medAstra completed the design and validation of three product lines: a spaceflight research pack designed for collecting human samples in microgravity; a post-surgical recovery pack that simplifies complex at-home care protocols; and a longevity medicine pack supporting high-fidelity diagnostics and personalized treatment programs. Together, these systems transform fragmented, error-prone medical routines into structured, mission-ready workflows.

medAstra also secured its first anchor customer in facial plastic surgery, demonstrating early clinical adoption in a precision-dependent surgical specialty. Building on this momentum, the company opened its seed investment round to support scaled deployment, expanded partnerships, and continued product refinement.

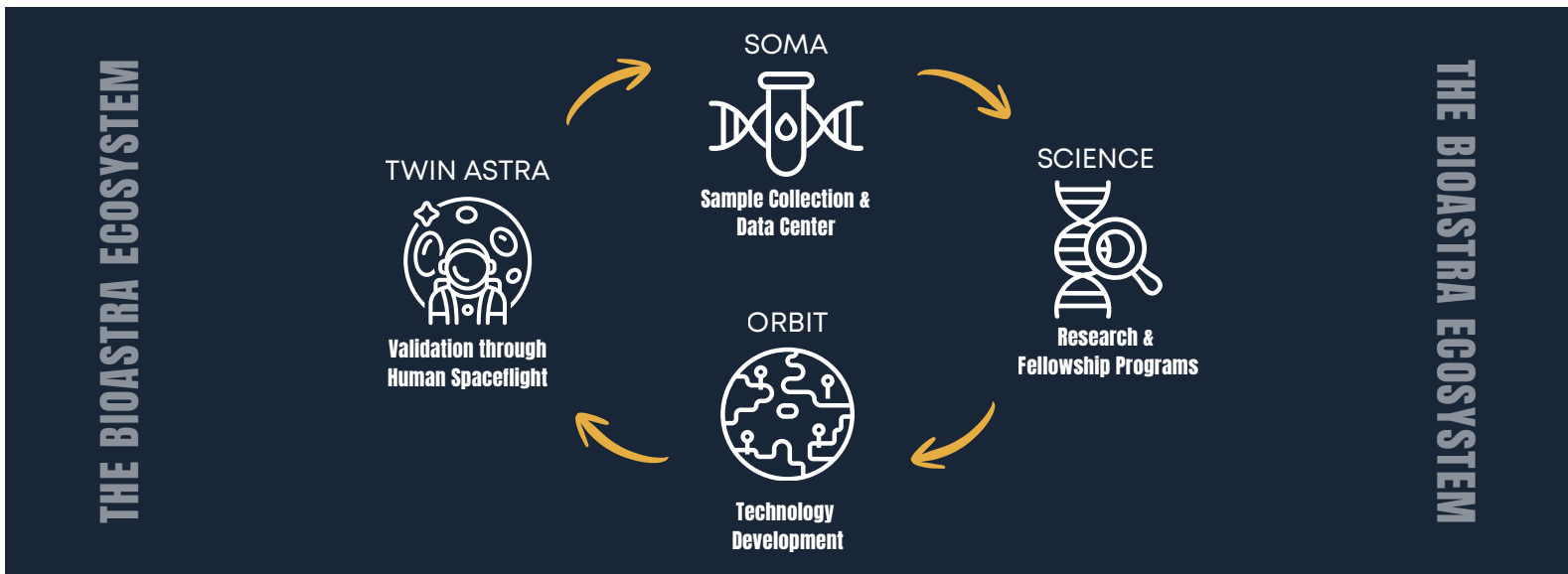
As BioAstra's first venture initiative, medAstra represents a clear proof point for translating space-enabled research into deployable solutions. The company's progress reinforces the broader organizational strategy: leveraging space as a proving ground to raise standards of care on Earth.

**“Medical systems that keep astronauts safe in orbit can, and should, raise the standard of care on Earth.”**

**- Savi Glowe, Co-Founder & CEO**

# 6 INTEGRATED IMPACT

BioAstra's programs are designed to operate as an integrated research ecosystem, where progress in one area strengthens outcomes across others. In 2025, this approach moved from theory to practice, with clearer connections between data stewardship, mission development, workforce training, field research, and translation.



**Twin Astra** operates alongside other BioAstra programs by creating new opportunities to study human biology in LEO and deep-space environments. The program's mission architecture and partnerships establish pathways for testing countermeasures, validating tools, and generating datasets that expand shared scientific understanding and inform translational work.

**SOMA** contributes a critical data stewardship capability within this ecosystem. As a trusted coordination center for sensitive, longitudinal omics data, SOMA supports research across multiple programs, including work enabled by Twin Astra, while informing downstream applications in medAstra. Its governance-first model ensures that high-risk, high-value data can be used responsibly while remaining accessible to the global research community.

The **Research Fellowship** program contributes by embedding early-career scientists directly into active research efforts. Fellows support work across space health, AI-enabled diagnostics, and operational medicine, while developing the interdisciplinary skills needed to advance complex missions.

**ORBIT** and the **Bikini Atoll Extremophile Initiative** extend BioAstra's reach beyond traditional research settings. Together, they translate insights from extreme environments—whether remote field sites or disconnected care settings—into frameworks and technologies that inform future space missions and Earth-based healthcare delivery.

Taken together, these programs reflect a shared strategy: using extreme environments as high-impact testbeds to generate knowledge, tools, and systems that advance human health on Earth and beyond.



# 7 PARTNERSHIPS & NETWORK GROWTH

In 2025, BioAstra expanded its ecosystem through a growing network of partners across aerospace, science, healthcare, philanthropy, and media. These relationships reflect increasing confidence in BioAstra's approach to space-enabled research and its relevance to real-world health challenges.

Key partnerships announced this year include collaborations with **Lockheed Martin** to support the Twin Lunar mission and **Starlab Space** to secure human and payload capacity in low Earth orbit. Together, these partnerships position BioAstra to operate across multiple orbital regimes while aligning with established leaders shaping the future of spaceflight.

BioAstra's work also gained broader visibility through national and international media coverage, extending its reach beyond traditional aerospace audiences. Twin Astra and medAstra were featured in outlets including **Politico**, **SpaceNews**, **Los Angeles Times**, and **Business Wire**, among others, helping situate BioAstra's work within broader conversations across healthcare, policy, and innovation.

In parallel, BioAstra launched an expanded presence on Instagram and X to share research milestones, mission updates, and scientific perspectives with a wider audience, strengthening engagement with the communities shaping the future of space, health, and biotechnology.

Ecosystem growth this year also included deeper engagement with scientific societies, investors, and philanthropic supporters, reinforcing alignment around ethics, governance, and long-term impact. Together, these relationships position BioAstra as a convening platform—bringing diverse stakeholders together to advance human health in space and on Earth.

# 8 PHILANTHROPIC & SCIENTIFIC LEADERSHIP

BioAstra's work this year was made possible by philanthropic partners whose support enabled long-term research, responsible stewardship, and mission-driven growth across the organization. Thank you to all who supported our mission.

## SPOTLIGHT DONORS

### Alba Tull

Alba Tull's leadership support strengthened BioAstra's core research infrastructure during a pivotal year of growth, with particular emphasis on sustaining and expanding SOMA's data stewardship, governance, and accessibility.

### Izzy Englander

Izzy Englander's support advanced BioAstra's mission across programs, enabling the organization to pursue integrated research and mission planning.

### Colossal Foundation

The Colossal Foundation's targeted support enabled BioAstra to advance planning for the Bikini Atoll Extremophile Initiative, supporting responsible field research in one of the world's most extreme and historically complex environments.

## LEADERSHIP CIRCLE

The Leadership Circle provided strategic guidance and philanthropic support that helped shape BioAstra's progress and strengthen the organization during a year of significant growth.

Thank you to our Leadership Circle (*listed alphabetically*):

- **Esther Dyson**
- **Poala Ferrari**
- **Tess Mateo**
- **David Peng**
- **Yvonne Pritchett**
- **John Shoffner**
- **David Young**

## SCIENTIFIC ADVISORY BOARD

BioAstra's Scientific Advisory Board brings expertise across spaceflight, medicine, and biotechnology to provide independent guidance on research direction, ethics, and long-term scientific strategy.

Thank you to our advisors (*listed alphabetically*):

- **Afshin Beheshti, PhD**
- **Daniela Bezdán**
- **George Church, PhD**
- **Sylvain Costes, PhD**
- **Ben Glicksberg, PhD**
- **Ben Lamm**
- **Kate Rubins, PhD**
- **Michael A. Schmidt, PhD**
- **Kimberly Washington**



# 9 ORGANIZATIONAL GROWTH

In 2025, BioAstra strengthened its organizational capacity to support increasingly complex research, mission planning, and translational work.

## TEAM EXPANSION

BioAstra welcomed key contributors whose expertise expanded execution across programs, product development, science, and communications (*listed alphabetically*):

- **Aaron Berliner, PhD** joined as a staff scientist and research fellowship mentor, providing expertise in the effects of space radiation on biological systems, advanced life support systems, and biological and chemical manufacturing.
- **Joseph Borg, PhD** joined as a staff scientist and research fellowship mentor. Dr. Borg is a leader in space biomedical research, with a focus on microbiomes in microgravity, and genetic and cellular responses to spaceflight.
- **Holly Gibson** joined as Director of Development and Communications, driving fundraising initiatives and strengthening BioAstra's ability to communicate its mission, research, and impact to external audiences.
- **Jangkeun Kim, PhD** joined as a staff scientist and research fellowship mentor. Dr. Kim integrates multi-omics techniques to study molecular adaptations to spaceflight and personalized medicine applications and is an active contributor to the Space Omics and Medical Atlas (SOMA).
- **Christine Wang, MSE** joined as a volunteer Project Research Specialist following her completion of the Crew-3 Research Fellowship, continuing to support active research efforts with a focus on ORBIT systems.
- **Hilary Wartinger, MPH** joined as Director of ORBIT and Head of Product for medAstra, bringing extensive experience leading health initiatives in extreme and humanitarian environments.

## INFRASTRUCTURE & CAPACITY

BioAstra continued to advance its operational and technical infrastructure, supporting data stewardship, mission readiness, and product development. These investments improved coordination across programs and strengthened readiness for upcoming missions, expeditions, and deployments.

## FUNDING & SUSTAINABILITY

The organization made progress toward long-term sustainability through a diversified funding base, combining philanthropic support, venture-backed translation via medAstra, and strategic partnerships. This structure supports independence, ethical governance, and sustained focus on high-impact research.

Together, these developments position BioAstra to scale responsibly while supporting its growing portfolio of programs in the years ahead.

An astronaut in a white spacesuit with a large life-support backpack is floating in space against a starry background with a purple and red nebula. The astronaut's right arm is raised.

# 10 LOOKING AHEAD

In the year ahead, BioAstra will focus on translating preparation into progress across research, missions, and fieldwork, while continuing to strengthen the infrastructure that supports ethical, long-term discovery.

**Twin Astra** will move from formalization into deeper mission planning and readiness, advancing partnerships, protocols, and research coordination in preparation for upcoming crewed biomedical missions in LEO and cislunar space. BioAstra will also begin the search and selection process for Twin Astra mission candidates, a key step in advancing the campaign.

**SOMA** will continue to develop as a governed, secure data resource, expanding its technical infrastructure and oversight processes to support future research access while remaining guided by participant trust and data integrity.

BioAstra will advance toward execution of the **Bikini Atoll Extremophile Initiative**, completing final preparations for the 2026 expedition and establishing workflows for sample analysis, data integration, and ethical community engagement. Insights from this work will inform research across space health, radiation biology, and synthetic biology.

**ORBIT** will progress along its development roadmap, moving toward prototyping and validation as a platform for delivering advanced medical care in remote and disconnected environments.

Across programs, BioAstra will continue to invest in talent, partnerships, and governance, scaling deliberately while maintaining scientific rigor and ethical clarity. The year ahead will be defined by readiness—positioning BioAstra to deliver durable impact across space and Earth.