



One Microgravity Technology, Three Human Health Applications

Shelby Giza, Director of Scientific Business Strategy
Space Tango

AIRBUS

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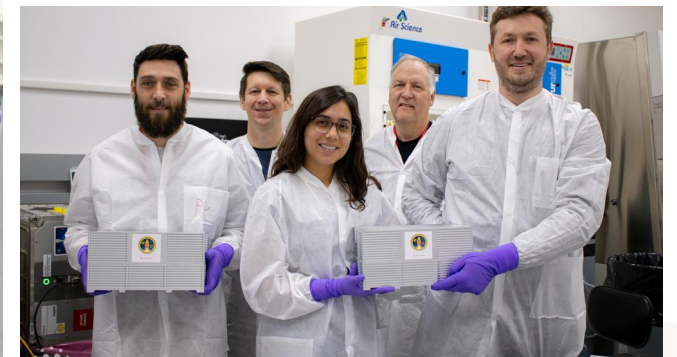


Space Tango provides automated solutions for data collection and manufacturing in space.

We facilitate the design, certification and operation of systems across space platforms.


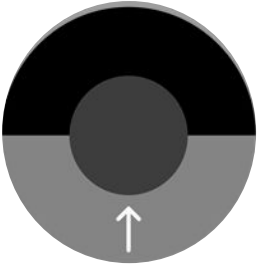
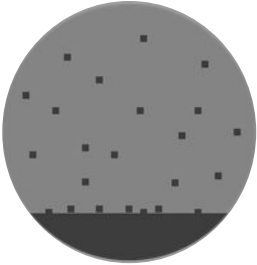
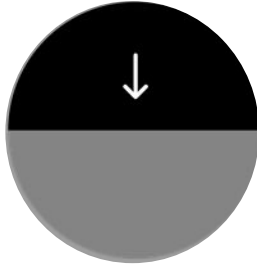
MISSIONS
36

PAYLOADS
273



Credit: Space Tango

Microgravity Enables Innovation

DIFFERENCE				
	CONVECTION	BUOYANCY	SEDIMENTATION	HYDROSTATIC PRESSURE
PRODUCT	Retinal Implants	Lab Grown Patient Specific Organs	Patient Specific Stem Cell Manufacturing	Organoid Growth for Drug Discovery

Credit: Space Tango

The Technology

CubeLabs are **designed to scale** and provide a suite of integrated capabilities to satisfy science requirements.

Integrated CubeLab capabilities:

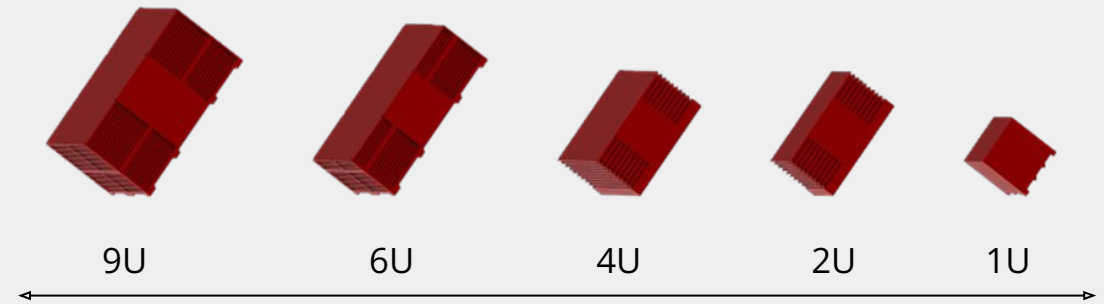
- ✓ Fluidic
- ✓ Thermal
- ✓ Electrical
- ✓ Imaging

Powered Ascent Utility Locker (PAUL)

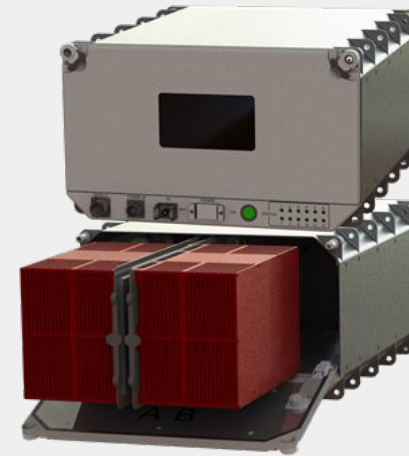
Platform-agnostic facilities provide power and data throughout the full flight lifecycle:

- ✓ Ascent
- ✓ On-Orbit
- ✓ Descent

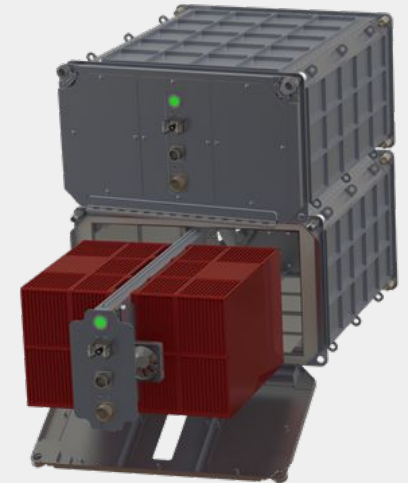
CUBELAB™ ARCHITECTURE



TANGOLAB

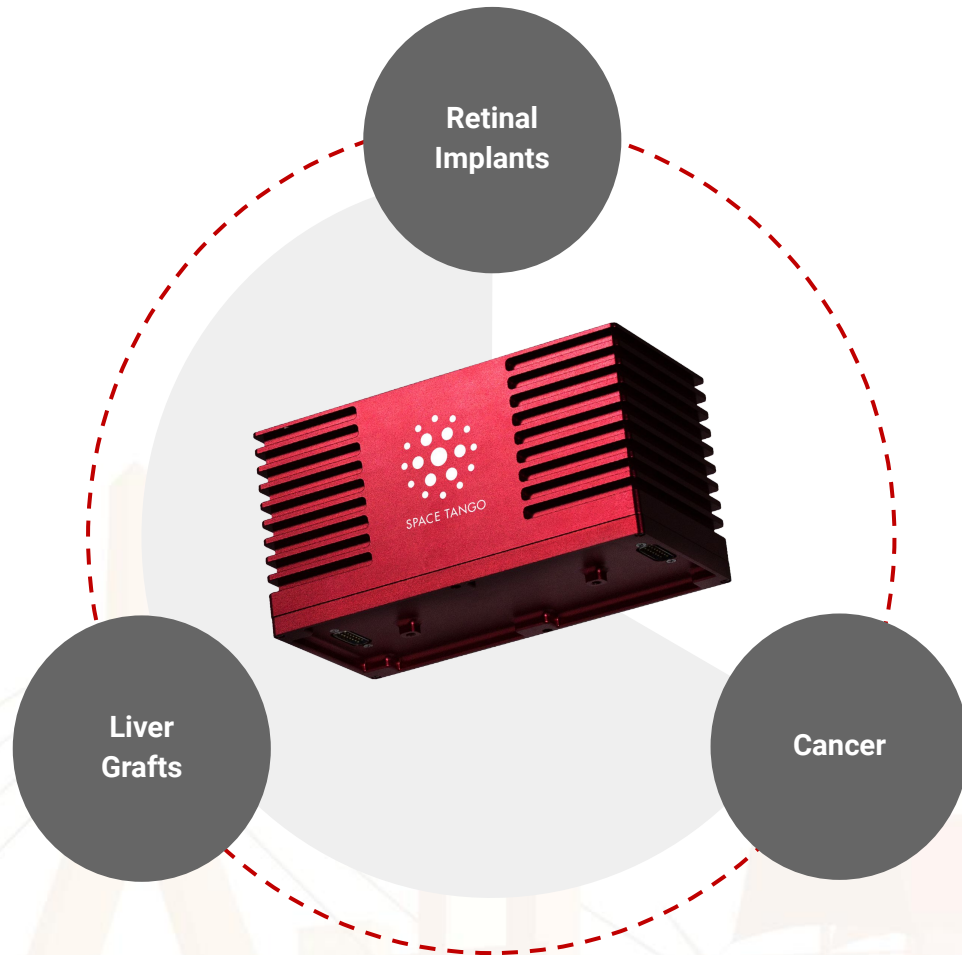


PAUL



Credit: Space Tango

Three Human Health Applications



- Life science applications require predetermined environmental controls mandated to **reduce human error** throughout operations
- Quality control is dependent on **consistency and reliability**
- Feasibility studies benefited from supply heritage, but transitioning to manufacturing usable products requires **greater output volume**

Unearthing Solutions | Artificial Retinas

Age-Related Macular Degeneration

288M people affected globally, with 20 million US AMD & Retinitis Pigmentosa diagnosis

\$15B predicted in patient benefits from future AMD treatments

Sight is considerably humanity's most valued sense. People will choose 4.6 years of perfect health over 10 years without sight.

Exploring Solutions - LambdaVision



Microgravity improves protein uniformity and alignment during layer-by-layer deposition, leading to a more effective artificial retina that is less affected by gravity-induced settling.

Sources: Vyawahare et. al, Genentech, Cleveland Clinic, Healthcare Finance News , Enoch et. al

Unearthing Solutions | Liver Grafts

Chronic Liver Disease

1.5B people affected globally, with 4.5 million US adult liver disease diagnoses.

\$14K more in healthcare expenses than average.

Liver Transplant Waitlist

12% mortality rate, with over 10,000 patients.

25% more patients added to the waitlist on average compared to recovered organs.

Exploring Solutions - UCSF



In microgravity, cells interact more effectively because sedimentation is eliminated, leading to the creation and improvement of liver-like functionalized grafts.

Sources: Insights10, Stepanova et. al, Organ Procurement and Transplantation Network

Unearthing Solutions | Cancer

Cancer

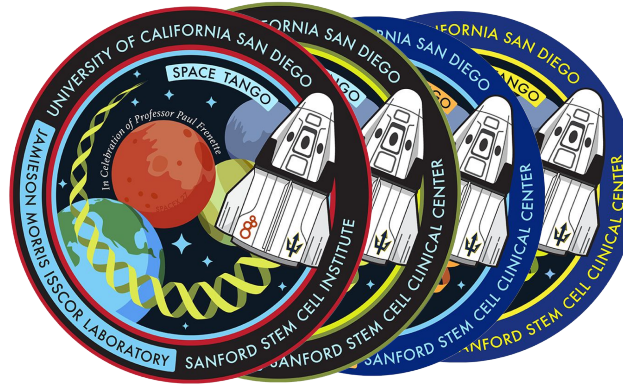
2nd leading cause of death in the United States

1.9M new cases in 2023

42% of new cases are avoidable with proper diagnosis and novel treatments

The survival rates for acute myeloid leukemia (adult), glioblastoma multiforme, and pancreatic cancer are often below 30% due to their aggressive nature and limited treatment options.

Exploring Solutions - UCSD Integrated Space Stem Cell Orbital Research (ISSCOR) Center



Microgravity accelerates cellular aging and provides valuable insights into disease progression, as well as new possibilities for diagnosis and treatment.

Sources: American Cancer Society, Hirshberg Foundation for Pancreatic Cancer Research, National Brain Tumor Society, Yale Medicine

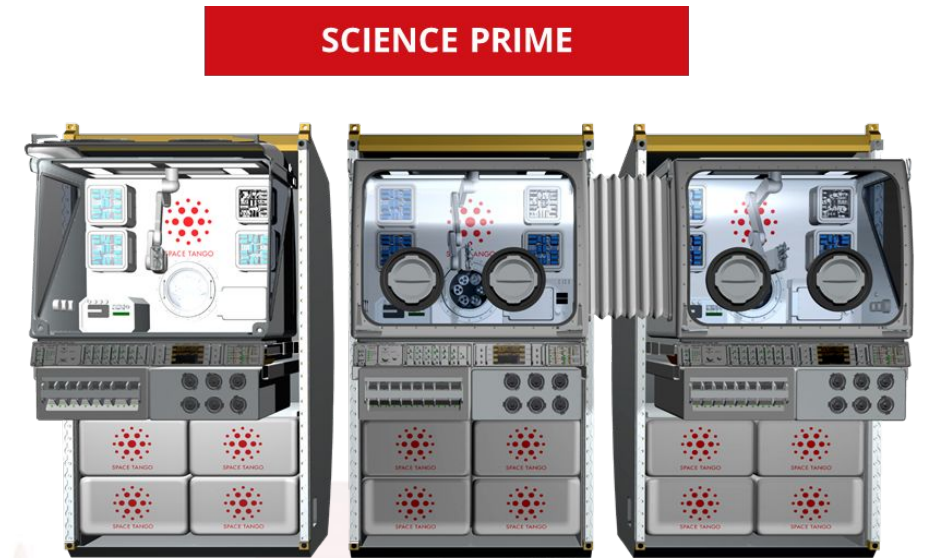
Roadmap for Human Health in Space

Space Tango's automated systems are poised to bridge the gap between ISS & CLD transition

- ✓ Systems may be autonomous or remotely operated from ground bases
- ✓ Systems are platform agnostic, and can support research aboard free-flyers

Science Prime advances the contained CubeLab form-factor to a modular, autonomous glovebox format

- ✓ Supports up to 112 simultaneous experiments
- ✓ Facility integrates plug-and-play internal payloads for specific solution needs and longevity testing



Thank you!

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