

PRESS RELEASE [embargo until 15 March 2023, 08.00 CET]

Advanced testing of human skin cells on the International Space Station to push the boundaries of innovation in regenerative medicine

- As part of the company's R&D in regenerative medicine, CUTISS will observe the effects of space on skin cells and tissue culture.
- Research implications towards human safety in space travel and new discoveries in regenerative medicine and tissue engineering on Earth.
- Four-week mission conducted in collaboration with SpacePharma which specializes in space-based experiments and micro-lab technologies.
- Micro-lab containing CUTISS's experiment travelled to the ISS on SpaceX's 27th commercial resupply mission (CRS-27) for NASA.

Switzerland, 15 March 2023 – CUTISS AG, a Swiss clinical-stage life sciences company focused on skin regenerative medicine and tissue engineering, has announced the start of an advanced research and development mission on board the International Space Station (ISS), leveraging the state-of-the-art micro-lab technology developed and provided by the Swiss spacetech company SpacePharma.

Daniela Marino, co-founder and CEO of CUTISS, commented: *"We are thrilled to launch this advanced research and development mission with SpacePharma on board the International Space Station, enabling us to push the boundaries of innovation in regenerative medicine and tissue engineering. We are excited by the potential of this research to improve the safety of space travel as well as the likelihood of making scientific discoveries for the benefit of people on Earth."*

Yossi Yamin, co-founder and CEO of SpacePharma, stated: *"We are discovering new and exciting ways to help humanity in novel medical and pharmacological solutions that can be researched and developed only under micro-gravity conditions in space. SpacePharma is proud to enable such advanced research for pharma and medical players and we are especially excited about this important collaboration with CUTISS that we believe may change scarring treatments for us all."*

In space, humans are known to be impacted by microgravity and space radiation, leading to changes in the structure and function of cells. Skin, like other organs, experiences changes in physical properties such as thickness and levels of hydration, and also biological properties that can impact wound healing. Building on CUTISS's expertise in skin biology and tissue bioengineering, the company will observe the biological processes and cell behavior of skin tissue in the space environment, in comparison to Earth's.

Studying the effects of space on skin tissue and cell culture is important for developing strategies to protect astronauts during spaceflight, understanding how exposure to the space environment can affect human health, as well as developing potentially new and innovative medical treatments and technologies that can benefit people on Earth.

Vincent Ronfard, Chief Innovation Officer of CUTISS, said: *"As we embark on this research and development mission in space, we are excited to leverage our expertise in skin biology and tissue bioengineering and to combine it with SpacePharma's cutting-edge technology. We look forward to observing the experiment in space and continuing our research and analysis after the lab returns to Earth."*

With the SpacePharma micro-lab plugged into the ISS's electrical and monitoring systems, CUTISS will observe in vitro the cultivation of human skin cells (keratinocytes and fibroblasts) in 2D or 3D culture systems to assess their ability to produce extracellular matrices, and also look at the cells' properties, such as their ability to migrate and to divide. The aim is to deepen our understanding of fundamental biological processes and potentially support the development of new therapies, devices and tools for wound healing, aging, and scarring.

Collaboration with cutting-edge spacetechnology company SpacePharma

To fulfill this space mission, CUTISS has collaborated with the Swiss company SpacePharma which develops micro-laboratories for advanced R&D in space under micro-gravity conditions. These remotely controlled, fully automated labs are based on lab-on-a-chip (LOC) technology, in other words a microfluidic device that carries living cells in a nutrient-rich growth medium.

With the micro-lab safely onboard the ISS, it will be connected to the station's power and monitoring systems by NASA astronaut Dr Warren Hoburg. The data from the micro-lab will be transmitted back to Earth and overseen in real-time by the CUTISS scientific team.

SpacePharma's micro-labs technology enables the collection of unprecedented results that cannot be obtained on terrestrial setting and the CUTISS team has worked closely with SpacePharma's mission experts to define solid preflight protocols.

For SpacePharma, this is the company's eighth flight to orbit, sixth mission to ISS, and thirtieth experiment for a commercial client.

Return to Earth in about one month

The ISS orbits at an average altitude of 408 kilometers above Earth. At the end of the mission, in approximately four weeks, the miniaturized lab will come back to Earth in the Dragon spacecraft near the Florida coastline.

CUTISS's cells will then be returned to company headquarters in Zurich, Switzerland, for more detailed analysis of the results of the experiments.

Research in microgravity: a new frontier

Microgravity is a disruptive opportunity for several major sectors: pharmaceuticals, biotechnology, material/chemical science and nutrition. It provides companies and researchers with the ability to accelerate discovery processes for new drugs and vaccines, develop new crystals and materials and accelerate the study of human genome and origin of diseases.

The potential scientific, technological and commercial benefits of microgravity research to humankind are substantial, and will revolutionize traditional Earth-bound processing methods.

About the CRS-27 mission

The SpacePharma micro-lab containing CUTISS's experiment traveled to the International Space Station on SpaceX's 27th commercial resupply mission (CRS-27) for NASA. Liftoff of the SpaceX Dragon cargo spacecraft on a Falcon 9 rocket took place on March 14, from Launch Complex 39A at NASA's Kennedy Space Center in Florida. SpaceX's Dragon has delivered new science investigations, supplies, and equipment for the international crew.

About CUTISS

[CUTISS](#) is a Swiss clinical-stage life sciences company focused on regenerative medicine and skin tissue engineering. It is developing the first personalized and automated skin tissue therapy offering life-saving and life-changing medical treatments for patients with severe skin injuries.

The lead product denovoSkin™ promises to take skin surgery to the next level and revolutionize current treatments. It is a bio-engineered and personalized dermo-epidermal human skin graft, currently in Phase II clinical trials in Switzerland and the European Union, with Orphan Drug Designation for the treatment of burns from Swissmedic, EMA, and FDA.

CUTISS is also developing the world's first machines that can automate the entire production process of the personalized skin graft. The company's knowledge in skin bio-engineering and biology offers several growth opportunities in regenerative medicine.

Established in 2017, the company is a spin-off from University of Zurich (UZH) / University Children's Hospital and was a member of the accelerator Wyss Zurich until February 2022. Headquartered at the Bio-Technopark in Zurich-Schlieren, it won the Top 100 Swiss Startup Award 2020, and has raised over CHF 65 million from private investors, family offices and public bodies.

About SpacePharma

[SpacePharma's](#) mission is to leverage its miniaturized microgravity lab technology, to enable unprecedented possibilities to explore, research and develop new pharmaceuticals in Space. The Company offers an end-to-end service and a platform of space micro-laboratories for pharma companies and medical research institutions worldwide.

Established in 2014, SpacePharma has already conducted 30 breakthrough pharma experiments in space, using its unique technology, via 8 launches and 2 R&D satellites, all successfully executed in collaboration with SpaceX, Axiom, NASA, ISS, and major pharma companies.

SpacePharma unique solution includes a unique micro-lab, fully equipped with top-quality miniaturized advanced infrastructure, including tailor-made Lab-on-chip and Organ-on-chip, microscope, data capturing abilities, remote control abilities, and proprietary droplet management technology. The SpacePharma scientific team has a unique expertise in pharmaceutical R&D and microgravity processes enabling a collaborative process, with the pharma companies, to ensure quality results.

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