



BSGN LIFE SCIENCE INDUSTRY ACCELERATOR

SPACE FOR INSPIRATION

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BSGN LIFE SCIENCES INDUSTRY ACCELERATOR

The Life Sciences Accelerator

- Managing partner: MEDES
- Focus areas: pharma, biomanufacturing, cosmetics, ..
- First call in September 2022:
 - 11 projects shortlisted
 - **5 projects accelerated so far**

Objectives

- Reaching new actors in the field of life sciences
- Supporting activities intended to solve terrestrial challenges with potential applications for exploration
- Developing “market driven” solutions based on the needs, challenges, and trends of industry
- Innovating with the use of the space environment in LEO
- Targeting project owners from ESA-E3P members states

Benefits for project owners

- Find a pathway to access R&D space-based facilities
- Co-fundings
- Enhanced credibility for the terrestrial market
- Support and expertise from the team

MEDES – Institute for Space Medicine and Physiology



- A hybrid organization for **SPACE and HEALTH**
- A multidisciplinary team with various health professionals biomedical, space engineers and IT
- Economic Group of Interest, main members: CNES et Toulouse Univ. Hospital
- Based in Toulouse, France

3 TYPES OF ACTIVITIES



Space exploration



Clinical research



Innovations / applications

Common fields of innovation

- *5P Medicine, AI, Medical devices*
- **Biotech, Pharma**
- *Digital Health, Connected Health*
- *Environment & health, tele-epidemiology, public policies*



MICROGRAVITY MARKET ON LIFE SCIENCES

CHALLENGES IN TERRESTRIAL BIOMANUFACTURING MARKET

NEW BIOMEDICINE

To produce biomedicines with disruptive properties from new sources

SMALL VOLUME

To produce complex proteins in (very) small volumes for personalized medicine

MANUFACTURING EFFICIENCY

To improve the results of the entire manufacturing chain

NEW MODEL

To develop suitable design tools to save considerable time and money

LEO ASSETS FOR BIOMANUFACTURING MARKET

DIFFERENT BEHAVIOR OF LIVING ORGANISMS

Changes in gene expression, morphological modifications and changes in cellular physiology

ACCELERATED DISEASE MODEL

Accelerated model of age-related disorders

PROTEINS/CRYSTAL GROWTH

Molecule crystals grow larger with fewer defects, new polymorphs and morphologies of crystals to be discovered

PHASE CHANGES FOR PROCESS

Study of separation processes on both micro and macroscale

FIVE LEADING TERRESTRIAL SEGMENTS BENEFITTING THE MOST FROM MICROGRAVITY



ANTIBODIES



THERAPEUTICS
MOLECULES & PROTEINS



GENE THERAPY



VACCINES



CELL THERAPIES

CURRENT PROJECT PORTFOLIO

SPACE ORGANOIDS (Mass production of organoids)

*Prometheus life technologies
(startup, CH)*

SPANCER (3D printed human tissues for cancer diagnosis)

*Roche (Large corporate, CH), Space
PharmaEU (startup, FR)*

HORUS (Diagnostic of neurodegenerative diseases)

*U. Grenoble Alpes (academic, FR),
OneTreck (startup, FR), Centre spatial
universitaire de Grenoble (academic,
FR), Space Pharma EU (startup, FR)*

ZEPRION II (Protein crystallisation for drug discovery)

*U. Milano (academic, IT), U. Trento
(academic, IT), U. Compostella (academic,
ES), IBBA-CNR (academic, IT), INFN
(institutional, IT), Space Pharma EU
(startup, FR)*

BIOORBIT (Mass production of crystalline protein drugs)

BioOrbit (startup, UK)



All projects will be presented by their leaders in the parallel session “BSGN industry accelerator projects” at 15:15

NEXT STEPS



THANK YOU FOR YOU ATTENTION

**Feel free to contact me:
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