INNOSpace Network Space2Health

Presentation delivered under agenda item 16 „Space and Global Health“ of the Scientific and Technical Subcommittee

Space2Health

Vanja Sebastian Zander
Project Leader Space2Health
Innovation and New Markets
German Space Agency at DLR

DLR

Bundesministerium für Wirtschaft und Klimaschutz

RAUMFAHRT BEWEGT

INNOspace

INNOspace 2health

Research institutes

German Space Agency at DLR

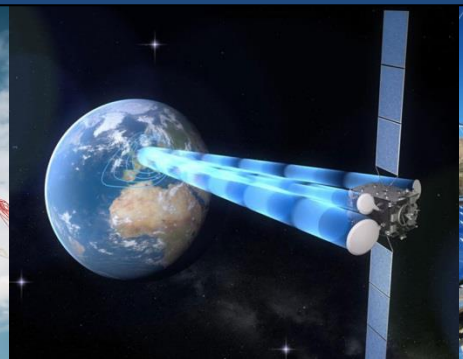
Project Management Agency

DLR

> 10.000	Employees
57	Institutes and facilities
30	Sites in Germany

Aviation

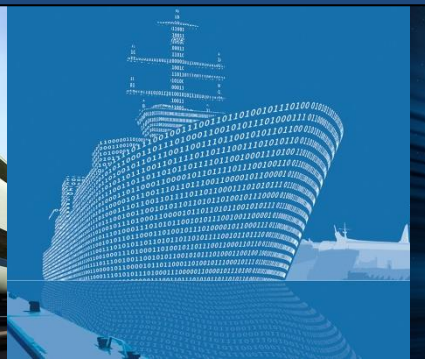
Space



Energy

Transport

Security



Digitalisation

Innovation through cooperation

Initiative INNOspace® (Hightech-Strategy of the Federal Govt)

- **Cross-sector conferences and workshops**
- INNOSpace Masters innovation competition
- INNOSpaceEXPO ALL.TÄGLICH!
- BMWK initiative „**Raumfahrt bewegt!**“

Bundesministerium für Wirtschaft und Klimaschutz

Intersectoral networks

for knowledge exchange and for initiating innovation projects

- **Space2Motion** – since March 2018
- **Space2Agriculture** – since March 2019
- **Space2Health** – since September 2020

INNOspace Network Space2Health

Cooperation potential
between Space and Health
Since 2nd of September 2020

DLR

Gefördert durch:

Bundesministerium für Wirtschaft und Energie

aufgrund eines Beschlusses des Deutschen Bundestages

RAUMFAHRT BEWEGT

INNOspace

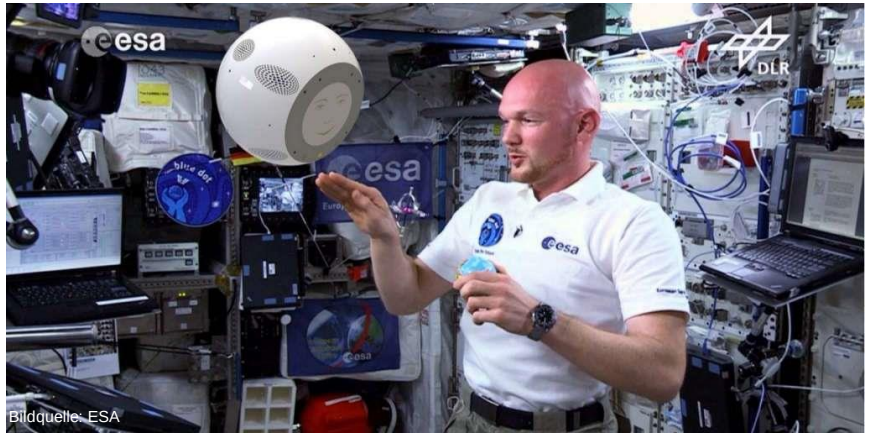
INNOspace 2health

Opportunities and challenges for the health sector in the 21st century

Digitalisation

Bildquelle: DLR

Artificial Intelligence



Bildquelle: ESA

Demographic change

Bildquelle: DLR

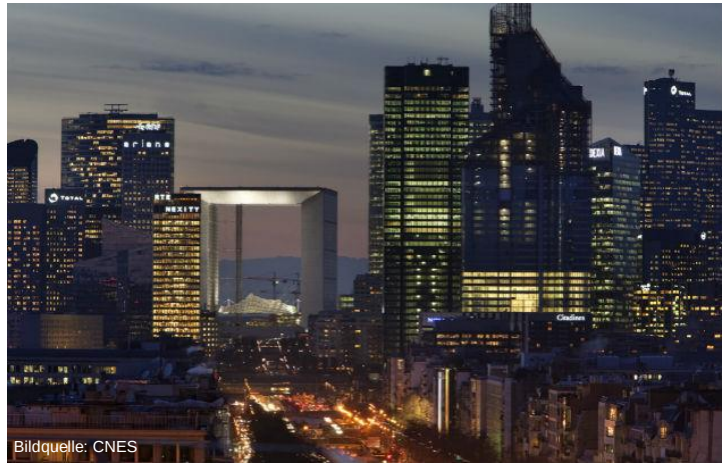
Anthropogenic climate change

Bildquelle: CNES

Robotics

Bildquelle: DLR

Urbanisation



Bildquelle: CNES

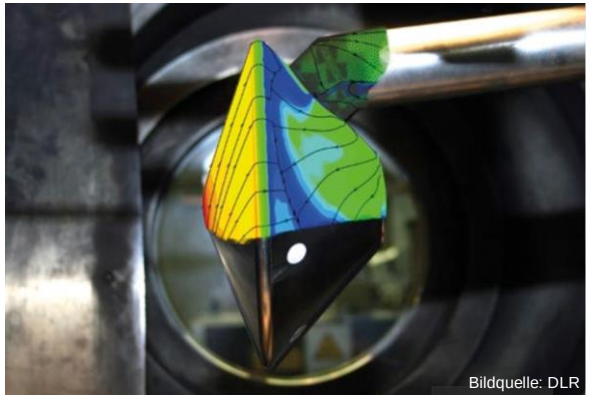
Space2Health - Topics

Prevention and health care

Medical care - technology and processes

Digitalisation, AI and data security

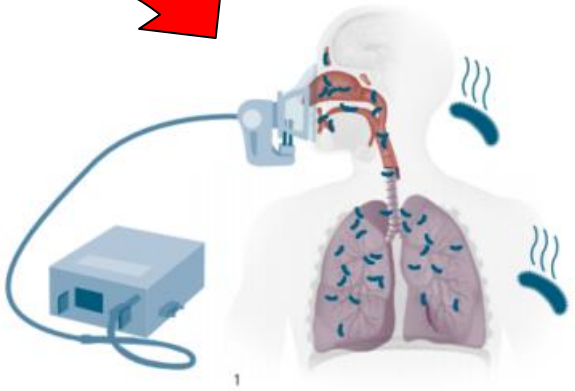
Certification, validation, qualification and testing

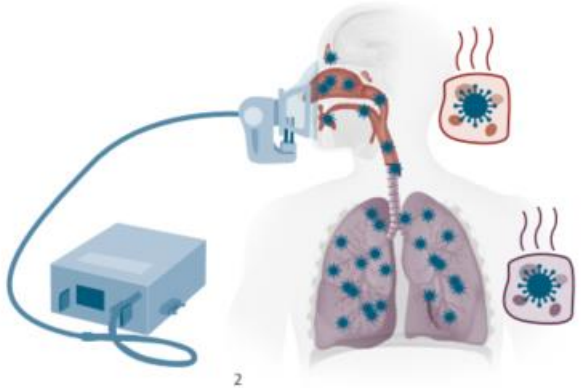


> 90 Space2Health - Network partners

The importance of technology and knowledge transfer based on a Space2Health project

Adaptation for terrestrial use





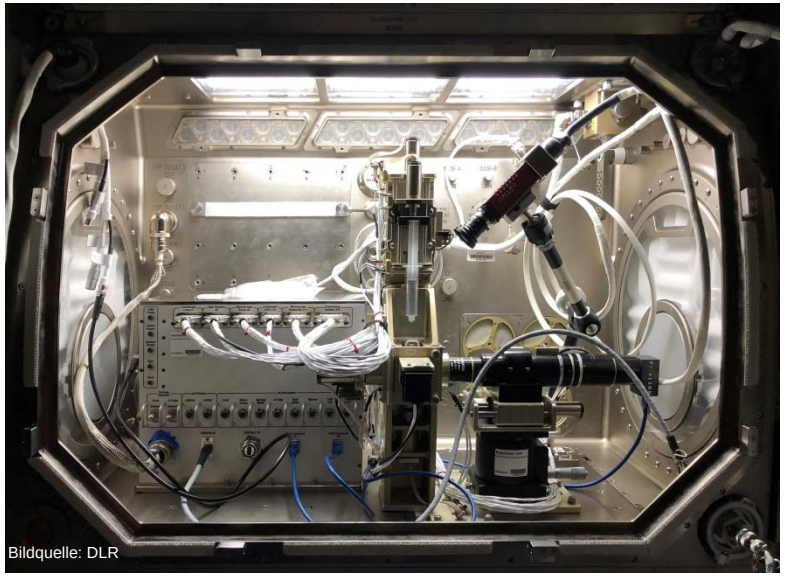
Adapting and developing technology for use in healthcare

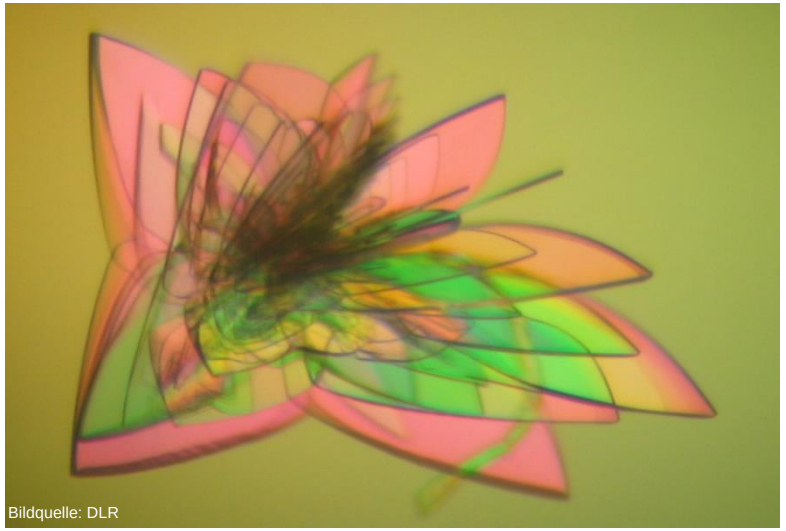
So that research into active substances in weightlessness prevents diseases

- Research under microgravity conditions in the Columbus module of the ISS is helping to understand protein crystallisation, which has been linked to devastating neurodegenerative diseases such as Alzheimer's and Parkinson's disease.

- Such experiments were conducted during Alexander Gerst's missions on the ISS, among others.

- Transfer of the application to the terrestrial health sector:
  - Development of new active substances
  - Treatment of neurodegenerative diseases such as Alzheimer's and Parkinson's disease.


Bildquelle: DLR

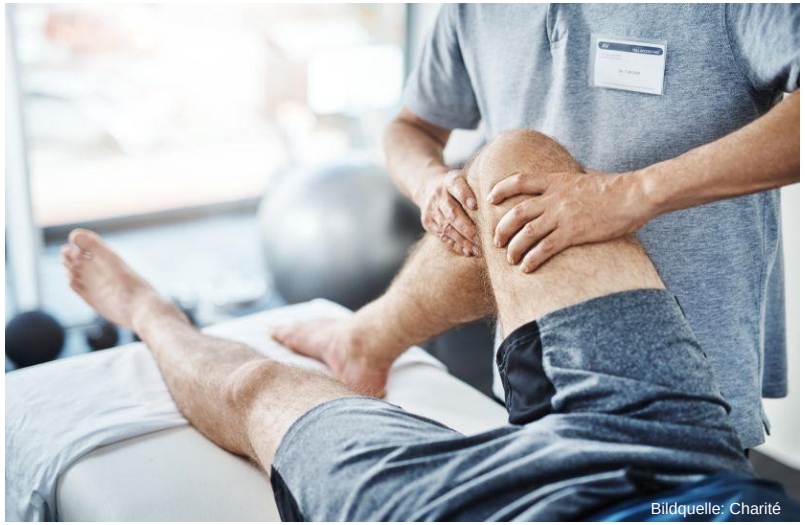

Bildquelle: DLR

To keep muscles strong

- **Myotones is the first to monitor the basic properties of the muscles with a non-invasive, wearable device.**

- Transfer of the application to the terrestrial health sector:
  - Therapy against muscle and bone atrophy
  - Training success monitoring for competitive sport and rehabilitation


Bildquelle: DLR

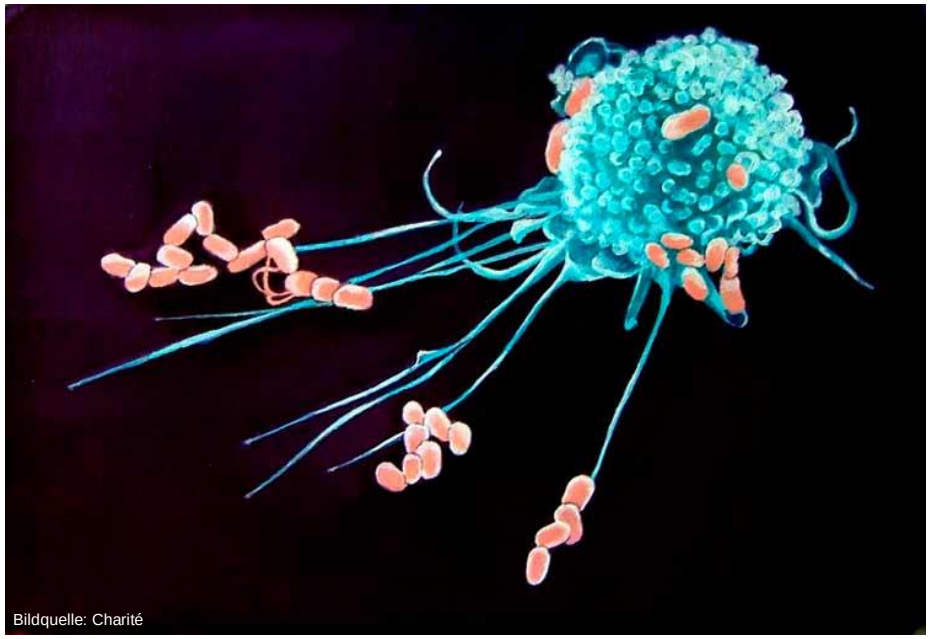

Bildquelle: Charité


Bildquelle: Charité

Keeping bodies healthy on Earth and in space

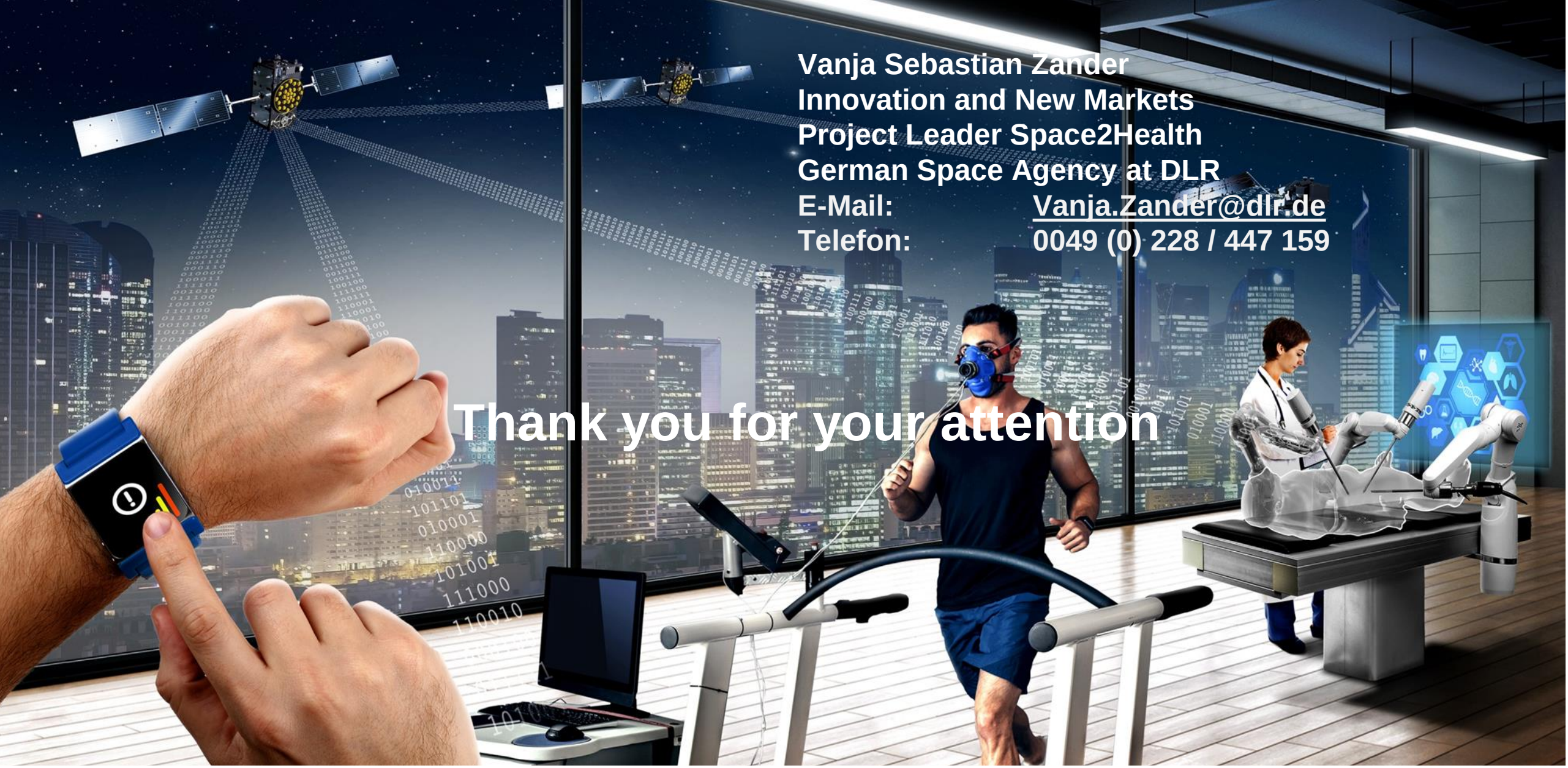
- Biochemical and psychological analyses in order to investigate the microgravity and stress-induced weakening of astronauts' immune systems and develop effective countermeasures.

- Transfer of the application to the terrestrial health sector:
- Understanding the connection between stress, brain and immune system
  - **Stress-related diseases**
  - Therapeutic approaches


Bildquelle: Charité


Bildquelle: Onmeda


Bildquelle: Charité



Vanja Sebastian Zander
Innovation and New Markets
Project Leader Space2Health
German Space Agency at DLR
E-Mail: Vanja.Zander@dlr.de
Telefon: 0049 (0) 228 / 447 159

Thank you for your attention

DLR

Bundesministerium für Wirtschaft und Klimaschutz

RAUMFAHRT BEWEGT

INNOspace

INNOspace 2health