



Experiments on the Swiss Parabolic Flights 2015-2022

1st Swiss Parabolic Flight Campaign, September 2015

Experiment title	Institution
Cavitation bubbles in variable gravity	Dr. Mohamed Farhad and Dr. Outi Supponen , EPFL
The cellular response to hypoxia during microgravity (HYPOXIA)	Prof. Dr. Johannes Vogel and Prof. Dr. Max Gassmann , University of Zurich
Primary macrophages in microgravity	Dr. Cora Thiel and Prof. Dr. Oliver Ullrich , University of Zurich
Primary endothelial cells in microgravity	University Putra Malaysia
Mechanical watches in altered gravity conditions	H. Moser & Cie

2nd Swiss Parabolic Flight Campaign, October 2016

The impact of hyper- and microgravity on expression of hypoxia-inducible factors alpha (HIF α 's) and their oxygen-dependent sub-cellular distribution	Prof. Dr. Johannes Vogel and Prof. Dr. Max Gassmann , University of Zurich
Gravity as a cue for plankton migrations	Prof. Dr. Roman Stocker , ETH Zürich
Involvement of calcium in mechanosensitive processes of muscle cells	Prof. Dr. Marcel Egli , Lucerne University of Applied Sciences and Arts (HSLU)
Are calcium dependent Ion channels also sensitive to gravity?	Prof. Dr. Marcel Egli , Lucerne University of Applied Sciences and Arts (HSLU)
Change of spinal stiffness in upright and prone position during microgravity induced by parabolic flights: A pilot study	Dr. Jaap Swanenburg , Balgrist University Hospital, Zurich
Mars Sedimentation Experiment Settling Tube Photometer Rack (MarsSedEx-STP Rack)	Prof. Dr. Nikolaus Kuhn , University of Basel
Virtual Reality in altered gravity	ICEBERG / Orbital Views
Experiment in the SPmgLab system (customer 1)	SpacePharma , Courgenay
Experiment in the SPmgLab system (customer 2)	SpacePharma , Courgenay
Experiment in the SPump system (customer 3)	SpacePharma , Courgenay

3rd Swiss Parabolic Flight Campaign, June 2018

Microgravity turns soils anoxic	Prof. Dr. Dani Or and Dr. Joaquin Jimenez-Martinez, EAWAG, ETH Zurich
The effect of changing gravity on spinal stiffness	Dr. Jaap Swanenburg , Balgrist University Hospital, Zurich
Effects of microgravity on membrane potential in cartilage cells	Prof. Dr. Marcel Egli , Lucerne University of Applied Sciences and Arts (HSLU)
Oxygen-shortage and manned space flights	Prof. Dr. Johannes Vogel and Prof. Dr. Max Gassmann , University of Zurich
Structural and molecular dynamics of cellular adaptation to microgravity	Prof. Dr. Oliver Ullrich , University of Zurich Dr. Srujana Neelam, National Aeronautics and Space Administration (NASA)
Crystallization in microgravity	SpacePharma , Courgenay
Space Manufacturing Experiment	Technology and Engineering Center for Space Utilization (CSU) , Chinese Academy of Sciences (CAS)
An exploratory study for measure and genesis of We-Consciousness: Induction through weightlessness in parabolic flights	Dr. Stephanie Schoss , University of St. Gallen (HSG)

4th Swiss Parabolic Flight Campaign, June 2020

TEMPus VoLA: The Timed Epstein Multi-Pressure-Vessel at Low Accelerations	Prof. Dr. Lucio Mayer , University of Zurich Dr. Holly L. Capelo , University of Bern
Computational Sedimentation Modeling Calibration Experiment (CompSedModCal)	Prof. Dr. Nikolaus Josef Kuhn , University of Basel
Effect of altered gravity on the nucleus	Dr. Srujana Neelam, NASA Kennedy Space Center Dr. Cora Thiel , University of Zurich
Mechanical Chest Compression in microgravity condition	Dr. Alessandro Forti, Eurac Research, Institute of Mountain Emergency Medicine Prof. Olaf Schedler , Helios Klinikum Bad Saarow
Integrative analyses of nuclear gravitational force transduction mechanisms and their role in gene expression homeostasis in immune and muscle cells	Dr. Cora Thiel and Prof. Dr. Oliver Ullrich , University of Zurich
The impact of hyper- and microgravity on expression of hypoxia-inducible factors alpha (HIF α 's) and their oxygen-dependent sub-cellular distribution	Prof. Dr. Johannes Vogel and Prof. Dr. Max Gassmann , University of Zurich
Pharmacologically induced immune control in human macrophages to prevent severe courses of Covid-19 with transfer of results from Space Medicine	Dr. Cora Thiel and Prof. Dr. Oliver Ullrich , University of Zurich
Influence of different gravitational forces on the measurement of body functions using IMU based sensor systems	Prof. Dr. Jörg Goldhahn , Dominik Hollinger and student team, ETH Zurich

6th Swiss Parabolic Flight Campaign, October 2022

Flying on Mars: How Gravity Alterations Affect Self-Motion Estimation in Human Drone Pilots	Prof. Dr. Davide Scaramuzza and Dr. Christian Pfeiffer, University of Zurich Dr. Leyla Khenissi , EPFL
The “genomic code” of gravity - Integrative analyses of chromatin organization and transcription	Dr. Cora Thiel and Prof. Dr. Oliver Ullrich University of Zurich
Exploring organoids - Test of “ZeroG Wells” for organoid production	Prof. Dr. Anne Beghin , National University of Singapore
Swiss Artificial Gravity Experiment (SAGE) - CubeSat Gravity Demonstrator Test; CubeSat Pump Demonstrator Test; CellBox Test	Fiona Konnerth, Simon Tobler, Rabea Rogge, Academic Space Initiative Switzerland – ARIS , ETH Zurich