



Enno Brinckmann, PhD, has been the Senior Biologist at the European Space Agency (ESA) and served as Project Scientist for about 100 experiments in ESA's biological research facility BIORACK that flew six times in SPACE-LAB and SpaceHab. His experience of active mission control and experiment support contributed to the development of new research facilities for the International Space Station (ISS).

This concise yet comprehensive treatment of the effects of spaceflight on biological systems includes issues at the forefront of life sciences research, such as gravitational biology, immune system response, bone cell formation and the effects of radiation on biosystems. Edited by a leading specialist at the European Space Agency (ESA) with contributions by internationally renowned experts, the chapters are based on the latest space laboratory experiments, including those on SPACELAB, ISS, parabolic flights and unmanned research satellites.

An indispensable source for biologists, medical researchers and astronautics experts alike.

From the Contents:

- The Gravity Environment in Space Experiments
- Primary Responses of Gravity Sensing in Plants
- Physiological Responses of Higher Plants
- Development and Gravitropism of Lentil Seedling Roots Grown in Microgravity
- Biology of Adherent Cells in Microgravity
- Microgravity and Bone Cell Mechanosensitivity
- Bone Cell Biology in Microgravity
- Cells of the Immune System in Space (Lymphocytes)
- Evaluation of Environmental Radiation Effects at the Single Cell Level in Space and on Earth
- Space Radiation Biology

The results of Space flight experiments, ground controls and flight simulations pave the way for a better understanding of gravity reactions in various organisms down to molecular mechanisms. This publication marks also the beginning of a new Space flight era with the construction and exploitation of the International Space Station (ISS) which provides a platform for an in-depth continuation of experiments under weightlessness in Low Earth Orbit and beyond.



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