

Contents

Preface	V
----------------------	----------

Jürgen Kiefer

Workshop Participants	XI
------------------------------------	-----------

Introductory Remarks: On the State of Radiation Research	1
---	----------

Jürgen Kiefer

Cellular Responses, Genomic Stability

Cellular Responses to DNA Damage – a Personal Account	9
--	----------

George Iliakis

Prospects for Research in Radiation Biology	29
--	-----------

Charles L. Limoli

Cellular and Molecular Aspects of the Anti-inflammatory Action of Low Dose Ionizing Irradiation	45
--	-----------

Peter M. Kern

The Network of Radiation Responses and Genomic Stability	57
---	-----------

Friederike Eckardt-Schupp, Simone Mörtl, and Eberhard Fritz

Topological Factors in Radiation Biology	69
---	-----------

Anna A. Friedl

Signalling

Molecular Radiation Biology – Perspectives for the Future	81
--	-----------

H. Peter Rodemann

P53 Stabilization and the Role of Radiation-Induced Signalling	93
---	-----------

Christine Blattner, Markus Winter and Roman Kulikov

Cytogenetics

Molecular Genetic Mechanisms of Radiocarcinogenesis and Predictive Markers for Radioresistance in Tumors – Present Work and Future Perspectives –	103
--	------------

Ludwig Hieber and Horst Zitzelsberger

FISH and CHIPs: Colorful Clues to Radiation-Induced Chromosomal Instability	111
--	------------

Tanja Hardt, Karen Stout, Frank Guthermuth, Jürgen Kiefer, and Thomas Haaf

Carcinogenesis, Radiation Protection

Recombination and Radiation-Induced Cancer. Mechanisms and Genetic Testing	121
---	------------

Jochen Dahm-Daphi, Petra Hubbe

UV-Radiation Biology as Part of Cancer Research	139
--	------------

R. Greinert, E.W. Breitbart, B. Volkmer

Contribution of Radiation Research to Human Space Exploration: Approaches to mitigate Radiation Health Risk in Spaceflight	157
---	------------

Marco Durante

Repair

Radiation Damage and Human Cells: You have to know one to understand the other	171
---	------------

Markus Löbrich

Different Means to an End: DNA Double-Strand Break Repair	179
--	------------

Kai Rothkamm

Impact of Physical Developments

Electrostatistics of DNA Complexes	189
---	------------

Roland R. Netz

Future Radiobiology at Accelerators: From Heavy Ion Therapy to Basic Research	211
--	------------

Gerhard Kraft

Targeting Radiation at the Subcellular, Cellular and Tissue Levels: Future Strategies	225
--	------------

Kevin M. Prise, M. Folkard, Boris Vojnovic and B.D. Michael

The PTB – a Competent and Reliable Partner for Research and Development Projects in the Field of Ionizing Radiation	235
--	------------

Jürgen Böhm

General Issues

Life Sciences and Radiation Research – Examples from the Past	249
--	------------

Jürgen Kiefer

Need and Importance of Further Research in the Field of Radiation	259
--	------------

P. N. Srivastava, R. N. Sharan

Reflections on the Acceptability of the Use of Ionizing Radiation to German Society	267
--	------------

Jürgen Böhm

Janus Face of Radiation Biology and Science for the Future	271
---	------------

Ohtsura Niwa

Postscript: Thoughts on the Future of Radiation Research and its Impact on Life Sciences	279
---	------------

Jürgen Kiefer