

GUEST EDITORS

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Professor Penny A Jeggo

Professor Penny A Jeggo is a senior scientist at the Genome Damage and Stability Centre at the University of Sussex. She has focused on a study of DNA damage responses in mammalian cells, and is most known for her work on DNA non-homologous end joining (NHEJ).

Professor Jeggo obtained her PhD from Dr Robin Holliday's laboratory at NIMR, London, starting her research career by studying DNA polymerases in the smut-like fungus, *Ustilago maydis*. Her first postdoctoral position with Dr John Cairns at the Imperial Cancer Research Fund Mill Hill Laboratories was focused on the response to alkylating agents in *Escherichia coli*. She commenced studies on mammalian cells during a second postdoctoral fellowship carried out in Dr Miroslav Radman's laboratory at the Université Libre de Bruxelles. These early studies made her appreciate the power of genetics and she exploited and applied the techniques learnt during her work with lower organisms to carry out a mutant hunt in mammalian cells, which culminated in the isolation of X-ray-sensitive (Xrs) Chinese hamster ovary cell lines. These have been used extensively by many laboratories and work on them has underpinned our knowledge on the process of NHEJ. Additionally, the cell lines were instrumental in enabling Professor Jeggo and collaborators to identify the first genes functioning in the process of DNA NHEJ. Professor Jeggo and colleagues showed that NHEJ was exploited during the process of V(D)J recombination and subsequently bringing knowledge gained from basic research to the clinic; patients deficient in NHEJ components were identified. Professor Jeggo works closely with immunodeficiency clinics within the United Kingdom to exploit basic research studies for diagnostic benefits. Since double-strand breaks are a major lethal lesion induced by ionizing radiation, a central aim of Professor Jeggo's work has been to understand the basis under-



Professor Markus Löbrich

lying human radiosensitivity. This work not only encompasses a study of the repair processes but also damage-induced signal transduction responses and, most importantly, the interplay between them. She is closely collaborating with Professor Markus Löbrich, her fellow guest editor, on this work. Professor Jeggo serves on several committees and editorial boards, including *Oncogene*. She is interested in the issue of radiation protection and participates in committees and working groups of relevance to this issue, including the Committee on Medical Aspects of Radiation in the Environment (Comare).

Professor Markus Löbrich, professor at the Darmstadt University of Technology, Germany, and currently heading the research group Radiation Biology and DNA Repair, is best known for his studies on cellular responses to double-strand breaks induced by ionizing radiation, in particular by low radiation doses.

Professor Löbrich has studied Physics in Darmstadt and Gießen, Germany and obtained his PhD in Radiation Biophysics in Professor Jürgen Kiefer's laboratory at the Justus-Liebig University in Gießen in 1993, performing studies on the effect of ionizing irradiation on the transcription regulation of ribosomal DNA. During his postdoctoral training in Radiation Biology under the guidance of Dr Priscilla Cooper in Berkeley, CA, USA, he studied processes of double-strand break misrejoining in human cells for which he developed a specialized pulsed-field gel electrophoresis technology. Subsequently, he performed his habilitation in Gießen in 1999 and then worked as a professor at the Saarland University in Homburg from 1999 to 2006 before he was appointed to his current position at the Darmstadt University of Technology. His current

research focus lies on cellular and molecular responses to DNA damage and their relationship to human health. Professor Löbrich is appointed member of the Committee for Radiation Risk and of the Executive Committee

of the National Radiation Protection Board. He has received several honours for his research, including the Michael Fry Research Award 2006 from the Radiation Research Society.