

# DNA Tumour Viruses

## Virology, Pathogenesis and Vaccines

Edited by:

**Sally Roberts**

Institute of Cancer and Genomic Sciences, College of Medical and Dental Sciences,  
University of Birmingham, Vincent Drive, Edgbaston, Birmingham B15 2TT, United Kingdom



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## Foreword

Cancers caused by human DNA tumour viruses are a considerable problem worldwide. By understanding the molecular biology of these viruses and the virus-host interactions that drive carcinogenesis, both anti-viral interventions and therapeutics have been developed for some of these viruses to reduce the burden of disease. The study of these viruses has also informed greatly on mechanisms of human tumourigenesis. The overall aim of this volume is to review the most important current research of the burden of cancers attributable to the DNA tumour viruses, their molecular virology, and the interactions between these viruses and their hosts that contribute to carcinogenesis. It covers all of the known human DNA tumour viruses and, as we have learnt much about tumour virology from the study of human adenoviruses that are not associated with any human cancer but are tumourigenic in model systems, it is very fitting to include this virus here. Epstein-Barr virus – the first human tumour virus to be discovered - and its role in epithelial carcinogenesis and lymphoma development, is covered in two separate chapters. These are complemented with an update of the development of prophylactic and therapeutic vaccines against this virus. Pathogenesis and associated therapeutics are reviewed for another herpesvirus, Kaposi sarcoma-associated herpesvirus. Hepatitis B virus, which has a partially double-stranded DNA genome, and its role in liver cancer development, is also covered in this volume. The molecular biology of small DNA tumour viruses; human papillomaviruses, and the more recently discovered Merkel cell polyomavirus – the first human polyomavirus to be associated with a human cancer, is discussed. A separate chapter addresses the development of vaccines to control infections with hepatitis B virus and human papillomavirus. Many of the DNA viruses engage in some way with the host DNA damage response pathways during their life cycle and therefore this is dealt with in a separate chapter.

I would anticipate that this volume about DNA tumour viruses would be a valuable source for all those working in the area and to those new to this field. Lastly, I am very grateful to the all the authors for their willingness to contribute to this volume.

Sally Roberts