Viral Therapy of Cancer

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Cancer continues to represent a major global challenge despite advances made in the last 10 years that have seen improvements in survival rates for many of the common solid tumours. A number of cytotoxics, novel targeted agents, innovations in radiation oncology and new surgical techniques have been developed and all have played their part in the steady progress that has been made. However, some of the most important advances have come about due to better multidisciplinary working and successful multinational collaborations in clinical trials. Further work is required to optimize the standard anticancer modalities (surgery, radiotherapy, conventional chemotherapy and targeted agents) but even with the best efforts these are likely to yield little more than incremental gains in treatment outcomes.

The most significant change in oncology in the last 20 years has been our understanding of the molecular and genetic basis of cancer. In the early 1990s, this knowledge led to the development of an entirely new modality of treatment with a rationale based on fundamental molecular observations involving oncogenesis, immunology and intracellular signaling pathways. This new therapy was born out of the new biology, termed gene therapy and presented the biomedical community with the possibility of a quantum change in therapeutics. Suddenly there was the theoretical possibility of treating the root cause of a variety of diseases: not just cancer, but cardiovascular disorders, neurodegenerative conditions, inborn errors of metabolism and infectious diseases have all been the targets of this new therapeutic strategy.

Gene therapy represents the ultimate multidisciplinary activity. However, it should be regarded as a non-subject because it is more a series of scientific interdependencies coming together to achieve a particular therapeutic objective. Viral Therapy of Cancer illustrates this point very well with almost the entire gamut of bioscience and clinical expertise represented by the contributors. The book focuses on cancer and the use of viruses, both as vectors and as therapeutic agents, the latter strategy having grown out of the early days of gene therapy when viral vectors seemed to be the only possible way forward. The development of viral therapy demonstrates an important truth about gene therapy programmes: namely, that the field of gene therapy is not a strategy that should be judged simply by the triumphs or failures of clinical trials. It is a scientific activity of considerable consequence that spins out important scientific knowledge while at the same time making us question our current standard clinical trial methodologies which are not fit for all purposes, e.g. ‘proof of principle’ studies.

This book has been edited by three experts in the field of cancer gene therapy with experience of both laboratory and clinical research. The text bridges the gap between bench and bedside and will appeal to both basic scientists and clinicians with an interest in viral and gene therapy. The book is very comprehensive and deals with the biology, selectivity and clinical applications of the viruses that have been used as cancer therapeutics.

The multidisciplinary nature of gene therapy means that it is sometimes difficult for those involved; virologist, molecular biologist, clinician,