

# Preface

After several decades of profound advances in our understanding of the genetics and molecular biology of Head and Neck cancer, it has become clear that the growth and survival of cancer cells are intimately linked to and regulated by “cancer genes”. Some genetic predispositions are inherited; most cancer genes develop as acquired changes to the host genome or epigenome from environmental influences. Targeted cancer therapies are drugs or other substances that block the growth and spread of cancer by interfering with specific molecules (“molecular targets”) that are critical to the biochemical pathways controlling cell proliferation, and the growth and metastasis of cancers. Targeted therapies are currently the focus of much anticancer drug development. So far, few targeted cancer therapies have been approved by the Food and Drug Administration (FDA) in the USA to treat Head and Neck cancer. Others are being studied in Phase 2/3 clinical trials, and many more are being tested in vivo in animal models and in in vitro settings.

With chapters written by internationally renowned experts, this book should be useful for students studying cancer biology at all levels and an essential reference guide for clinicians involved in all aspects of the care of patients with Head and Neck cancer. It provides a ready source of the background science behind the many new agents they will come across in their daily practice. The chapters of the book are grouped in two sections; the first 4 contain introductory information that will be helpful to the clinicians while serving as reviews for scientists. Chapter 1 gives an essential overview—partly historical and also cutting edge—of the fundamental biological processes which become deranged in cancer. Chapters 2 and 3 complement the above with more detail of particular aspects of the behaviour of the malignant cell phenotype. We present in Chap. 4 the emerging, positive clinical data obtained to date on several molecular pathways that have rationale as targets for cancer therapy. The review of the literature outlines the extensive upstream and downstream regulatory crosstalk and molecular heterogeneity of Squamous Cell Carcinomas of Head and Neck (SCCHN). Taken together, these chapters provide the rationale for personalized medicine: the targeting of treatment to the individual patient’s genetic abnormalities. The state of the art and science of such approaches are presented in Chaps. 5–9. Each focuses on a specific molecular target that is

currently in use or being developed for treating Head and Neck cancer. The final chapter captures the current status of drug development, particularly in clinical trials.

We intend the book to appeal to senior clinicians and academic trainees from all backgrounds who care for patients with Head and Neck cancers, in order to encourage them to join clinical trials and establish research collaborations. There is a great potential to improve the lives of patients with both early and advanced Head and Neck cancers, to test systemic therapies, perhaps as adjunctive treatments to established surgical and radiation-based approaches, or even as first-line treatment of otherwise incurable disease. In all of these approaches, we seek not only to prolong life, but also to minimize toxicity and maintain quality of life as best we can.

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