British Journal of Cancer (2012) 107, 1663

www.bjcancer.com

Book Review

Targeted therapeutics in melanoma

TF Gajewski and FS Hodi
Publisher: Humana Press, New York, USA, 2012. ISBN: 978-1-61779-406-3. £144, pp 377

British Journal of Cancer (2012) **107,** 1663. doi:10.1038/bjc.2012.454 www.bjcancer.com

Targeted therapies refer to drugs that act on molecules known to be important in cellular proliferation, survival and spread. These molecules are usually protagonists in key cellular signalling pathways, the aberrant function of which allows the uncontrolled growth characteristic of tumours. Knowledge of these mechanisms enables the identification of viable therapeutic targets. By developing drugs aimed specifically at blocking these targets, it is potentially possible to arrest abnormal cell growth, disrupt tumour angiogenesis or induce cell death.

Cancer immuno or biotherapies harness a patient's immune system to treat their malignancy. This is achieved through various mechanisms ranging from general immune activation (for example with cytokines) to the administration of specific antibodies. Newer agents in particular exert their effect by targeting specific parts of tumour cells; therefore, these too are considered to be targeted therapies.

Targeted therapies have been developed for many tumour types, and the use of these agents is now common (either as single agents or in combination therapies). In this way, cancer treatments are becoming increasingly individualised, the intention being to tailor therapies towards the characteristics of an individual patient's malignant cells, rather than their generic tumour type. Arguably, this not only improves efficacy but also reduces treatment toxicities by targeting (and therefore killing) only cancerous, not healthy cells.

In contrast to the significant advances made in other malignancies over recent years, melanoma had remained in the oncology wilderness, particularly where targeted drugs were concerned. Developments in targeted therapy in melanoma over the last few years are as a direct consequence of a better understanding of the biology of the disease. *Targeted Therapeutics in Melanoma* coherently describes this journey of discovery, providing an insight for scientists and clinicians alike into the effort that the progress of recent years has taken.

The book is divided into three main parts. The first is the shortest and serves as an introduction to the other two, by describing the cellular background of melanoma pathogenesis that is necessary to understand the subsequent development of therapies. The remaining parts focus on signalling molecule drug targets and immunotherapy in turn, with each part being further subdivided into chapters with a much narrower focus. Each chapter (written by recognised melanoma experts) stands independently as a comprehensive extensively referenced review of both the scientific data relating to the particular sub-theme, its consequent clinical translation and evidence of efficacy, repeatedly illustrating the key concepts of rational new drug design. This is done particularly successfully in Chapter 5, relating to targeted inhibition of BRAF, which also goes on to describe the phenomenon and mechanisms of drug resistance. Perhaps surprisingly (given their different authors), when taken together the chapters within each part flow well, giving an authoritative overview of these two distinct areas of melanoma therapeutics in which there is now unequivocal evidence of improved patient survival.

Inevitably, there is factual overlap (particularly in the scientific content) between chapters, but this simply serves to reiterate important points. It also highlights the complex interactions and the extent of overlap between the different signalling pathways described. Illustrations are used sparsely, predominantly to aid in the description of particular molecular signalling or immunological pathways, or to pictorially clarify the results of genomic profiling. This is not necessarily a shortcoming, however, as in most chapters the clear textual descriptions are more than adequate to convey the required information to the reader. Although fairly concise, (at 377 pages in length) it is unlikely that this text will be read from cover to cover by most. It would, however, be a valuable point of reference for both scientists and clinicians with an interest in melanoma; particularly for those new to the field, for whom it provides a comprehensive historical perspective of the knowledge gained over recent decades.

Melanoma research has evolved rapidly over recent years, and continues to do so at breathtaking speed. The fact that this book remains current despite the inevitable delays of the publication process is testimony to the foresight of many of the authors, who in their discussions have correctly predicted the direction and (in some cases) possible outcomes of ongoing research. Some of the questions posed may already have preliminary answers, but there remain many highlighted areas that will continue to be the focus of ongoing research for some time to come.

Z Ali[1], R Fisher[1] and J Larkin[1]
[1]*Royal Marsden Hospital, London, UK*