

Preface

Cancer is something that nobody welcomes. Yet, it visits us randomly. Once cancer shows up on our doorstep, it just won't go away. It would be nice if we can figure out why and when cancer decides to visit any one of us. Cancer treatment has become more effective over the years, at least for some cancers, but overall cancer is seldom curable. Developing new effective drugs is important, but most drugs have side effects. The drug is useful as long as the benefit is larger than the side effects, but having the drug without side effects is the ultimate goal. One of the functions of drug delivery systems is to minimize the side effects while maximizing the pharmacological efficacy.

While current drug delivery systems have shown promising results in increasing the benefit/risk ratio, the technology has to be improved substantially. Thus, we ask a simple, yet fundamental, question: why is it so difficult to cure cancer? Cancer is not a single disease that can be eradicated by a single drug. Cancer occurs for a variety of reasons and no two cancers are identical. To improve our chances of treating cancers successfully, depending on how we define "successful," we need to understand cancer better. As Sun Tzu pointed out in his famous book, *The Art of War*, winning the battles requires knowing the enemy and ourselves. President Nixon declared the war on cancer, i.e., signed the National Cancer Act, in 1971, making cancer our enemy. This enemy is derived from our own cells, and unfortunately, is evasive as well as evolving; thus winning the battle becomes complicated. To know ourselves means knowing our current technologies on delivery of anticancer agents. One of our goals of editing this book was to define our enemy more clearly and understand our own ability of targeted drug delivery better.

Cancer Targeted Drug Delivery: An Elusive Dream begins with knowing the enemy through learning the history of our efforts on selected drug delivery to cancer cells, tumor physiology and the microenvironment around tumors, and tumor heterogeneity. To better understand ourselves, several chapters describe the current state-of-the-art approaches of reaching cancer cells and developing improved preclinical models. Finally, this book discusses the current missing components and what can be done in the near future. It is the hope of the editors that the information in this book

can be used to stimulate scientists in the field to find better ways to manage cancers. The immediate goal is to find a way for the cancer patients to live a normal life without cancer recurrence for an extended period of time, hopefully the lifetime of the patients. The ultimate goal, of course, is to find a way to achieve our elusive dream of curing cancers.

The editors are indebted to Carolyn Honour at Springer who invited us to work on the topic of this book. We would also like to thank Renata Hutter who handled all administrative aspects of editing this volume. Our thanks go to all authors of *Cancer Targeted Drug Delivery*. The quality of the book is only as good as the quality of the authors, and we can confidently announce that the quality of this book cannot be higher. We hope that this book will serve as a valuable source of collective information on targeted drug delivery to cancers for scientists with all levels of background and experience.

Salt Lake City, UT, USA
Claverton Down, Bath, UK
West Lafayette, IN, USA

You Han Bae
Randall J. Mrsny
Kinam Park

<http://www.springer.com/978-1-4614-7875-1>

Cancer Targeted Drug Delivery

An Elusive Dream

Bae, Y.H.; Mersny, R.J.; Park, K. (Eds.)

2013, XVII, 720 p. 117 illus., 86 illus. in color.,

Hardcover

ISBN: 978-1-4614-7875-1