

PREFACE

The purpose of *Tumor Targeting in Cancer Therapy* is to describe both experimental and clinical applications of antibodies for targeting tumors. Drug targeting has gone a long way since the initial concept of “magic bullets” was developed by Paul Ehrlich at the beginning of the 20th century.

Twenty-five years after their discovery and after many years of failure to bring them to the bedside for therapeutic uses, monoclonal antibodies are now in a renaissance phase, both clinically and commercially.

Monoclonal antibodies are theoretically ideal for the therapeutic area with all the required properties such as an extreme specificity and binding affinity that could be adjusted as needed, low cost commercial production, and a potential to be tailored to specific needs such as they could be made to fix, complement, be monomers, dimers, to be toxic or nontoxic; they could also be made to fix the same antigen on both arms of the antibody or different ones as needed. They have limitless applications in the therapeutic area.

When Ehrlich proposed the concept of magic bullets for the treatment of cancer, he probably had in mind drug targeting with polyclonal antibodies, but with the development of other fields in cancer therapy and in biotechnology, the concept has now been applied to radioimmunotherapy, radioimmunodetection, therapy with cytotoxic antibodies, immunotoxins, enzyme-prodrug immunotherapy, immunotherapeutics with fusion proteins, and a whole range of applications that are discussed in *Tumor Targeting in Cancer Therapy*.

Presently, more than 15% of all drugs in development are derived from the monoclonal antibody technology. The drug industry has entered a new era, and products derived from biotechnology, and more specifically antibodies, are now applied to heart disease, cancer, and infectious diseases.

The immunogenicity of monoclonal antibodies for humans, which was for a long time a stumbling block, and the short half-life in circulation are now better understood and controlled by various strategies such as chimerization, phage display technology, and humanization. These technologies have also permitted the affinity of monoclonal antibodies to be increased to the picomolar range. It must be remembered, however, that for cancer therapy the high affinity antibody is not always the best candidate.

Many pharmaceutical companies have built on these technologies, and the number of clinical trials with monoclonal antibodies is still increasing.

Tumor Targeting in Cancer Therapy is intended for scientists, clinicians, and pharmaceutical investigators in cancer immunology and cancer therapeutics. It covers the various aspects of targeted cancer therapy, from fundamentals to biodistribution and clinical applications. The contributors come from academic institutions, government, the drug industry, and the biotechnology industry.

Each chapter covers a specific aspect of targeting without too many technical details. *Tumor Targeting in Cancer Therapy* is not an accumulation of scientific papers on the subject, but instead offers state-of-the-art reviews on each topic.

For graduate students and for new scientists in the field, the first chapter gives a complete review on the subject. It also gives the necessary information to be able to evaluate technologies available to start new projects, and for teaching cancer therapeutics and immunology.

It was a pleasure to edit this book and I thank all the authors for their collaboration. I also learned as an editor new reasons for not respecting the deadline. Many that I had never used before. I thank you for writing these exceptional scientific papers and I wish all authors and readers good luck in their research.

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