METHODS IN MOLECULAR BIOLOGY™

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Antibody-Drug Conjugates

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Preface

Antibody–drug conjugates (ADCs) represent a promising therapeutic approach for cancer patients by combining the antigen-targeting specificity of monoclonal antibodies (mAbs) with the cytotoxic potency of chemotherapeutic drugs. The FDA approval of Adcetris® (brentuximab vedotin) in 2011 and Kadcyla® (trastuzumab emtansine or T-DM1) in 2013 has validated the idea of making "armed" antibodies, attracting a lot of attention into this field. ADC technology has been an active area of research in recent years, resulting in a number of ADCs in development for various tumor types. The number of immunoconjugates or ADCs undergoing clinical trial will thus further increase, possibly replacing some of the existing naked monoclonal antibodies, and becoming the next generation of anticancer biotherapeutics.

Although the ADC concept is quite simple, successfully designing and developing such a "smart bomb" is a complex task. Despite a tremendous increase in our understanding in recent years, a lot of work is necessary in order to identify a suitable target; properly design the mAb, the linker, and the payload; as well as conjugate them in a reproducible and scalable fashion.

The success of the current conjugation technologies has been achieved thanks to the development of new methodologies. The aim of this book is to provide detailed protocols for many of the key ADC techniques necessary for working in the field. Each method is described by an author who has regularly used the technique in his or her laboratory. In addition, several review chapters are included to summarize the current knowledge and results in the ADC area. These should make this book useful to readers with no previous ADC experience as well as those already working in the field. It is my hope that this publication will further drive ADC development and thus help towards improving cancer treatments of the future.

Visp, Switzerland *Laurent Ducry*

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