

# Foreword

This book represents an essential guide capable of presenting and dissecting the steps of a revolution that has been taking place in cell manufacturing with a specific but not exclusive focus on the so-called hospital-based facilities.

The introduction of more stringent rules in cell-based therapeutics development started just after the mid-2000 in Europe and in other regions of the globe. This mandated new operational rules and new ways of thinking. A sort of “industrial revolution” in cellular therapy aimed to change the manner in which a cell-based treatment had to be conceived, manufactured, and introduced into different clinical scenarios. It was a true challenge for both the producers and the regulators.

The lines in this precious text are taking advantage of almost 10 years of these complex evolutions and experience, accompanying the reader within proper product developmental strategies that consider operational contaminations between enterprises and hospital facilities as a way to generate quality assurance systems capable of facing new regulations and providing better products in early and late clinical phases.

This “gmp-ification” transition was relatively easily absorbed by industries, finding more resistance in less prepared hospital environments. The authors address this aspect, outlining which ways hospital-based facilities were able to face this “industrial revolution” in cell manufacturing. This phase also overlapped with an unprecedented crisis in world economy investing public institutions and enterprises and negatively impacting the investments for novel therapeutic approaches, cells included.

Here, the authors give evidences on how, despite the crisis, these two worlds were able to adapt and share their strategies to satisfy regulatory requirements, producing a quality system for GxP implementation that is now generating products with solid legs able to walk the different paths of human diseases.

The reader is lead to a road map for product development from pre-clinical evidences to clinical translations, depicting regulatory framework in Europe with clarification on definitions and regulations for the so-called Advanced Therapeutics Medicinal Product (ATMP) manufacturing. While mostly focused on the European context, the authors attempt to reflect their guidance onto other frameworks, suggesting a need for harmonization within different regulations.

The several phases of a cell-based therapy development are described with enlightening examples. Indications of the need for preclinical strategies to assess efficacy and safety are provided—outlining how all these steps should be cell specific and disease related. Instructions on how to design nonclinical programs to valorize the power of a cell-based product and to address concerns in a risk-based approach are described

in a simple but not reductive manner. All these aspects will always find a partner in the International Society for Cellular Therapy (ISCT), which I am currently chairing.

The entire book is a Good X Practice analysis, where the “X-factors” are represented by laboratory (L), manufacturing (M), and clinical (C) steps that should take a scientifically sound concept and translate it for patient care. In particular, one can appreciate the proposal of a consistent introduction of clinical research approaches to assess the safety and the potential of a cellular product abandoning passionate expectations to look for measurable end-points within appropriate follow-up.

My feeling is that the editors and the authors of this book have truly centered on hot topics in cellular therapeutics have collected milestone contributions. I additionally have the vivid sensation that this book will play a relevant role in educating academia and industry. Many clinicians, scientists, technicians, developers, and all cellular therapists should be grateful to these authors who were here able to share their pioneering experience in the field.

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