

Preface

As the world becomes increasingly concerned about affordable health care, fast and effective screening methods for drugs in different formulations are required in the course of their development. Moreover, a more personalized medicine demands production of drugs in very small volumes. For both, the microfluidic approach seems ideally suited. With miniaturized systems that can be realized by microfabrication processes, new tools for research and development but also new products become available. New and better technologies for screening, for production by micro-reaction technology and micro-bioreactors, for small-scale processing of drug formulations, as well as for drug delivery are under development. Interdisciplinary research involving typical engineering disciplines and life science disciplines is the key for a further development of this field. This challenge has been accepted by the Center of Pharmaceutical Engineering (PVZ) of the TU Braunschweig established in 2012 where research groups from the pharmaceutical sciences, from biology, from process engineering, and from microtechnology intensively collaborate. Many but not all chapters of this book are written by authors active in this research center.

The book shall provide a comprehensive state-of-the-art review of microfluidic approaches and applications in pharma technology. It shall help students and postgraduate students with an interdisciplinary interest from both the pharmaceutical field and the engineering field but also process developers in the pharmaceutical industry and scientists with an overview of technologies and applications in this growing field of research.

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