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Nota di contenuto	Chapter 1 A short introduction to vaccines -- Chapter 2 Thermostability of vaccines -- Chapter 3 Drying technologies for vaccines -- Chapter 4 Aseptic spray drying technology -- Chapter 5 Design of experiment studies and scale-up -- Chapter 6 Applications of spray dried vaccines.-Chapter 7 Conclusions and future perspectives of spray-dried vaccines.
Sommario/riassunto	This book addresses the stabilization of vaccine powders by spray drying and provides an overview of the current state of the art on a laboratory and industrial scale. The book aims to familiarize readers with the advances in vaccine spray drying technology to understand its application potential better. In particular, the book addresses the design of aseptic spray dryers, parameters affecting the spray drying process, sterile powder processing, cleaning procedures, and powder filling. In addition, different drying technologies for the production of dry powder vaccines are compared to discuss the unique capabilities of spray drying as a particle technology for vaccines. Special attention is given to research studies on spray-dried vaccines published over the past 30 years, with key findings from laboratory research to clinical trials. Potential applications of spray-dried vaccines and routes of administration are presented in detail. Finally, an outlook is given on

how close the aseptic spray-drying of vaccines is to the market and the challenges that need to be overcome to be commercially successful. The book's target audience is academics, researchers, vaccine developers, industry experts, students, and possibly funders, including government agencies, who are active in the field. In addition, the book is a reference source for those involved in the vaccine formulation and biopharmaceutical processing industry.
