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Nota di contenuto	Preface -- Section 1 Introduction -- Chapter 1 Introductory Chapter: CRISPR Technology by Yuan-Chuan Chen -- Chapter 2 Emerging CRISPR Technologies by Annelise Cassidy and Stephane Pelletier -- Section 2 Technology -- Chapter 3 Maximizing the Efficacy of CRISPR/Cas Homology-Directed Repair Gene Targeting by Terry S. Elton, Md. Ismail Hossain, Jessika Carvajal-Moreno, Xinyi Wang, Dalton J. Skaggs and Jack C. Yalowich -- Chapter 4 The Prominent Characteristics of the Effective sgRNA for a Precise CRISPR Genome Editing by Reza Mohammadhassan, Sara Tutunchi, Negar Nasehi, Fatemeh Goudarziasl and Lena Mahya -- Chapter 5 Recent Advances in In Vivo Genome Editing Targeting Mammalian Preimplantation Embryos by Masahiro Sato, Masato Ohtsuka, Emi Inada, Shingo Nakamura, Issei Saitoh and Shuji Takabayashi -- Section 3 Application -- Chapter 6 Applications of CRISPR/Cas9 for Selective Sequencing and Clinical Diagnostics by Maximilian Evers, Bjorn Brandl, Franz-Josef Muller, Sonke Friedrichsen and Stephan Kolkenbrock.
Sommario/riassunto	CRISPR technology has been extensively used in vitro and in vivo as a tool in basic research for genetic editing (e.g., genome encoding, silencing, enhancing, and modification). Although there are many technical and ethical challenges to overcome, such as off-target effects, delivery tool selection, and safety concerns, scientists are working to improve this technology. CRISPR technology is promising for practical applications as well as for laboratory work and basic research.

Currently, CRISPR is being used successfully in microbial detection, disease diagnosis, and manufacturing of agricultural products, food, industrial products, and medicinal products. The development of medicinal products using CRISPR will open a new era for human therapeutics and may bring hope for the recovery of ill patients. This book provides a comprehensive overview of CRISPR technology. It examines its discovery, improvement, and implications, explores its technology and applications, and discusses perspectives and challenges.