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Nota di contenuto	Cover -- Title -- Copyright -- End User License Agreement -- Contents -- Foreword -- Preface -- List of Contributors -- Recent Advances in CRISPR-Cas Genome Engineering: An Overview --

Angelina Job Kolady¹, Aritra Mukherjee¹, Ranjith Kumavath^{1,2,*}, Sarvepalli Vijay Kumar³ and Pasupuleti Sreenivasa Rao^{4,5,*} -- INTRODUCTION -- GENOME EDITING -- GENOME EDITING TOOLS AND THEIR LIMITATIONS -- Restriction Enzymes (RE) -- Zinc Finger Nucleases (ZNFs) -- Transcription Activator Like Effector Nucleases -- Discovery and History -- Components of CRISPR-Cas -- Cas9 -- sgRNA and How to Design sgRNAs -- PAM Sequence -- Component CRISPR -- Component CRISPR (3C CRISPR) -- APPLICATION OF CRISPR -- Generation of Knockout -- Making Specific Modifications -- Combat Antimicrobial Resistance -- Genome Engineering in Agriculture -- Genome Engineering in Industrial Biotechnology -- FUTURE PERSPECTIVES OF CRISPR-CAS9

Sommario/riassunto

This reference is a comprehensive review of genome editing in bacteria. The multi-part book meticulously consolidates research findings and insights on the applications of bacteria across several industries, including food processing and pharmaceutical development. The book covers four overarching themes for readers: a historical perspective of genome editing, genome editing in probiotics, applications of genome editing in agricultural microbiology and genetic engineering in environmental microbiology. The editors have also compiled chapters that provide an in-depth analysis of gene regulation and metabolic engineering through genome editing tools for specific bacteria. Key topics in part 1: - An Overview of advances in CRISPR-CAS research - Applications of CRISPR/CAS9-based genome editing for industrial microorganisms - Gut microbiome modulation to address gut dysbiosis - Bifidobacterium genome editing for probiotic development and metabolic engineering. - Insights into the use of lactic acid bacteria as starter cultures in the food - Genome editing of vegetable-derived *L. Plantarum* - Genome editing in *Bacillus Licheniformis* Genome Editing in Bacteria is a definitive reference for scholars, researchers and industry professionals navigating the forefront of bacterial genomics. Readership Scholars and professionals interested in bacterial genomics.
