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Nota di contenuto	Plasmids for Therapy and Vaccination; Preface; Contents; List of Contributors; 1 The Biology of Plasmids; 1 Introduction: What are plasmids?; 2 General properties of plasmids; 2.1 Plasmid replication and its control; 2.2 The molecular basis of incompatibility; 2.3 Plasmid inheritance; 2.4 Mechanisms of plasmid spread; 2.4.1 Conjugation in gram-negative bacteria; 2.4.2 Conjugation in gram-positive bacteria; 3 Plasmid-encoded phenotypes; 3.1 Bacteriocin production and resistance; 3.2 The Ti plasmids; 3.3 Heavy metal resistance; 3.4 Other phenotypical traits 4 The clinical importance of plasmids4.1 The spread of antibiotic resistance and the evolution of multiple antibiotic resistance; 4.2 Transfer of antibiotic resistance genes; 4.3 Mechanisms of antibiotic resistance; 4.4 Bacterial virulence genes; 5 Plasmid cloning vectors; 6 Perspectives; References; 2 Structures of Plasmid DNA; 1 Introduction; 2 Topological structures of plasmids; 3 Supercoiling of DNA; 4 DNA intercalating dyes; 5 Analysis of plasmid structures; 5.1 Electron

microscopy (EM); 5.2 Agarose gel electrophoresis (AGE); 5.3 Capillary gel electrophoresis (CGE)
5.4 Analytical chromatography
6 Conclusion; References; 3 Genetic Vaccination with Plasmid Vectors; 1 Introduction; 2 Vector design; 2.1 Plasmid DNA; 2.2 Construction of simple transcription units; 2.3 Construction of complex transcription units; 3 Strategies for DNA delivery; 4 Priming humoral and cellular immune responses by DNA vaccines; 5 Experimental strategies facilitated by DNA vaccination; 6 Unique advantages of DNA vaccination; 7 DNA vaccines in preclinical animal models; 7.1 DNA vaccines to control infectious diseases; 7.2 Therapeutic tumor vaccines; 7.3 Autoimmune disease
7.4 Treatment of allergy by therapeutic DNA vaccination
8 Proposed clinical applications of DNA vaccines; 9 Risks of nucleic acid vaccination; 10 Future perspectives; References; 4 A Liposomal iNOS-Gene Therapy Approach to Prevent Neointimal Lesion Formation in Porcine Femoral Arteries; 1 Introduction; 2 Results and discussion; 2.1 Therapeutic plasmid; 2.2 The gene therapy product has a clinically acceptable format; 2.3 Efficient gene transfer was established in a minipig femoral artery injury model; 2.4 Transfection efficiency is dose dependent
2.5 Non-viral iNOS gene transfer efficiently inhibits neointimal lesion formation
3 Summary and perspectives; References; 5 Immunotherapy of Chronic Hepatitis B by pCMV-S2.S DNA Vaccine; 1 Introduction; 1.1 Hepatitis B: the disease; 1.2 Hepatitis B: treatments; 1.3 Hepatitis B: immune response to infection; 1.4 What are DNA vaccines?; 1.5 Which DNA vaccines for hepatitis B?; 2 DNA vaccines for the prevention of hepatitis B; 2.1 The mouse model; 2.1.1 Humoral response; 2.1.2 Cell-mediated response; 2.1.3 Mechanisms of DNA-induced immune response to HBsAg; 2.1.4 The primate model
2.1.5 DNA-based vaccination of chimpanzees against HBV

Sommario/riassunto

This is the first book specializing in plasmids and their biomedical use, including all relevant aspects of production, applications, quality, and regulations. Readers will discover clinical applications for the wide range of preventive and therapeutic applications using plasmid DNA. The book describes modified vector systems based on plasmids, as well as the potency of genomic research and vector design by informatics. Using the example of fish vaccination, the application of DNA vaccination in veterinary health care is reviewed, followed by a detailed overview of plasmid production technol
