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Nota di contenuto	Preface; Abbreviations; CHAPTER 1 Setting the scene: the new science of genomics; Introduction; Physical mapping of genomes; Sequencing whole genomes; Benefits of genome sequencing; Outline of the rest of the book; Terminology; Keeping up to date; Suggested reading; Useful websites; CHAPTER 2 The organization and structure of genomes; Introduction; Genome size; Sequence complexity; Introns and exons; Genome structure in viruses and prokaryotes; The organization of organelle genomes; The organization of nuclear DNA in eukaryotes; Suggested reading; Useful websites CHAPTER 3 Subdividing the genome Introduction; Fragmentation of DNA with restriction enzymes; Separating large fragments of DNA; Isolation of chromosomes; Chromosome microdissection; Vectors for cloning DNA; Yeast artificial chromosomes; P1-derived and bacterial artificial chromosomes as alternatives to yeast artificial chromosomes; Retrofitting; Choice of vector; Suggested reading; Useful website; CHAPTER 4 Assembling a physical map of the genome; Introduction; Restriction enzyme fingerprinting; Marker sequences; Hybridization

assays; Physical mapping without cloning
Integration of different mapping methods Suggested reading; Useful websites; CHAPTER 5 Sequencing methods and strategies; Basic DNA sequencing; Modifications of chain-terminator sequencing; Automated DNA sequencing; DNA sequencing by capillary array electrophoresis; Base calling and sequence accuracy; High throughput sequencing; Sequencing strategies; Alternative DNA sequencing methodologies; Suggested reading; Useful websites; CHAPTER 6 Genome annotation and bioinformatics; Introduction; Traditional routes to gene identification; Databases; Overview of sequence analysis
Detecting open-reading frames Software programs for finding genes; Using homology to find genes; Analysis of non-coding RNA and extragenic DNA; Identifying the function of a new gene; Secondary databases of functional domains; Gene ontology; Analyses not based on homology; Genome annotation; Molecular phylogenetics; Suggested reading; Useful websites; CHAPTER 7 Comparative genomics; Introduction; Orthologues,paralogues and gene displacement; Protein evolution by exon shuffing; Comparative genomics of prokaryotes; Comparative genomics of organelles; Comparative genomics of eukaryotes
Other aspects of comparative genomics Suggested reading; Useful websites; CHAPTER 8 Protein structural genomics; Introduction; Determining gene function by sequence comparison; Determining gene function through conserved protein structure; Approaches to protein structural genomics; Suggested reading; Useful website; CHAPTER 9 Global expression pro ling; Introduction; Traditional approaches to expression pro ling; Global analysis of RNA expression; Global analysis of protein expression; Suggested reading; Useful websites; CHAPTER 10 Comprehensive mutant libraries; Introduction
High-throughput systematic gene knockout

Sommario/riassunto

With the first draft of the human genome project in the public domain and full analyses of model genomes now available, the subject matter of 'Principles of Genome Analysis and Genomics' is even 'hotter' now than when the first two editions were published in 1995 and 1998. In the new edition of this very practical guide to the different techniques and theory behind genomes and genome analysis, Sandy Primrose and new author Richard Twyman provide a fresh look at this topic. In the light of recent exciting advancements in the field, the authors have completely revised and rewritten many parts of