

Free ebook Molecular cloning laboratory manual second edition download (PDF)

the first two editions of this manual have been mainstays of molecular biology for nearly twenty years with an unrivalled reputation for reliability accuracy and clarity in this new edition authors joseph sambrook and david russell have completely updated the book revising every protocol and adding a mass of new material to broaden its scope and maintain its unbeatable value for studies in genetics molecular cell biology developmental biology microbiology neuroscience and immunology handsomely redesigned and presented in new bindings of proven durability this three volume work is essential for everyone using today's biomolecular techniques the opening chapters describe essential techniques some well established some new that are used every day in the best laboratories for isolating analyzing and cloning dna molecules both large and small these are followed by chapters on cdna cloning and exon trapping amplification of dna generation and use of nucleic acid probes mutagenesis and dna sequencing the concluding chapters deal with methods to screen expression libraries express cloned genes in both prokaryotes and eukaryotic cells analyze transcripts and proteins and detect protein protein interactions the appendix is a compendium of reagents vectors media technical suppliers kits electronic resources and other essential information as in earlier editions this is the only manual that explains how to achieve success in cloning and provides a wealth of information about why techniques work how they were first developed and how they have evolved

rev ed of molecular cloning a laboratory manual joseph sambrook david w russell 2001 the condensed protocols from molecular cloning a laboratory manual is a single volume adaptation of the three volume third edition of molecular cloning a laboratory manual this condensed book contains only the step by step portions of the protocols accompanied by selected appendices from the world's best selling manual of molecular biology techniques each protocol is cross referenced to the appropriate pages in the original manual this affordable companion volume designed for bench use offers individual investigators the opportunity to have their own personal collection of short protocols from the essential molecular cloning the first two editions of this manual have been mainstays of molecular biology for nearly twenty years with an unrivalled reputation for reliability accuracy and clarity in this new edition authors joseph sambrook and david russell have completely updated the book revising every protocol and adding a mass of new material to broaden its scope and maintain its unbeatable value for studies in genetics molecular cell biology developmental biology microbiology neuroscience and immunology handsomely redesigned and presented in new bindings of proven durability this three volume work is essential for everyone using today's biomolecular techniques the opening chapters describe essential techniques some well established some new that are used every day in the best laboratories for isolating analyzing and cloning dna molecules both large and small these are followed by chapters on cdna cloning and exon trapping amplification of dna generation and use of nucleic acid probes mutagenesis and dna sequencing the concluding chapters deal with methods to screen expression libraries express cloned genes in both prokaryotes and eukaryotic cells analyze transcripts and proteins and detect protein protein interactions the appendix is a compendium of reagents vectors media technical suppliers kits electronic resources and other essential information as in earlier editions this is the only manual that explains how to achieve success in cloning and provides a wealth of information about why techniques work how they were first developed and how they have evolved

recombinant dna laboratory manual is a laboratory manual on the fundamentals of recombinant dna techniques such as gel electrophoresis in vivo mutagenesis restriction mapping and dna sequencing procedures that are useful for studying either prokaryotes or eukaryotes are discussed and experiments are included to teach the fundamentals of recombinant dna technology hands on computer sessions are also included to teach students how to enter and manipulate sequence information comprised of nine chapters this book begins with an introduction to bacterial growth parameters how to measure bacterial cell growth and how to plot cell growth data the discussion then turns to the isolation and analysis of chromosomal dna in bacteria and drosophila plasmid dna isolation and agarose gel analysis and introduction of dna into cells subsequent chapters deal with tn5 mutagenesis of pbr329 dna cloning in m13 dna sequencing and dna gel blotting probe preparation hybridization and hybrid detection the book concludes with an analysis of lambda phage manipulations this manual is

intended for advanced undergraduate or beginning graduate students and should also be helpful to established investigators who are changing their research focus this manual is an indispensable tool for introducing advanced undergraduates and beginning graduate students to the techniques of recombinant dna technology or gene cloning and expression the techniques used in basic research and biotechnology laboratories are covered in detail students gain hands on experience from start to finish in subcloning a gene into an expression vector through purification of the recombinant protein the second edition has been completely re written with new laboratory exercises and all new illustrations and text designed for a typical 15 week semester rather than a 4 week intensive course the project approach to experiments was maintained students still follow a cloning project through to completion culminating in the purification of recombinant protein it takes advantage of the enhanced green fluorescent protein students can actually visualize positive clones following iptg induction cover basic concepts and techniques used in molecular biology research labs student tested labs proven successful in a real classroom laboratories exercises simulate a cloning project that would be performed in a real research lab project approach to experiments gives students an overview of the entire process prep list appendix contains necessary recipes and catalog numbers providing staff with detailed instructions a complement to the bible of recombinant dna molecular cloning these manuals are essential for every laboratory in which genes are being studied a complement to the bible of recombinant dna molecular cloning these manuals are essential for every laboratory in which genes are being studied this manual is an indispensable tool for introducing advanced undergraduates and beginning graduate students to the techniques of recombinant dna technology or gene cloning and expression the 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students an overview of the entire process prep list appendix contains necessary recipes and catalog numbers providing staff with detailed instructions reflecting the various advances in the field this book provides comprehensive coverage of protein protein interactions it presents a collection of the technical and theoretical issues involved in the study of protein associations including biophysical approaches it also offers a collection of computational methods for analyzing interactions molecular biology techniques a classroom laboratory manual fourth edition is a must have collection of methods and procedures on how to create a single continuous comprehensive project that teaches students basic molecular techniques it is an indispensable tool for introducing advanced undergraduates and beginning graduate students to the techniques of recombinant dna technology or gene cloning and expression the techniques used in basic research and biotechnology laboratories are covered in detail students will gain hands on experience on subcloning a gene into an expression vector straight through to the purification of the recombinant protein presents student tested labs proven successful in real classroom laboratories includes a test bank on a companion website for additional testing and practice provides exercises that simulate a cloning project that would be performed in a real research lab includes a prep list appendix that contains necessary recipes and catalog numbers providing staff with detailed instructions this manual introduces the reader to basic methods used in the isolation cloning and analysis of genetic material the protocols include rt pcr amplification gene cloning hybridization analysis and sequencing of nucleic acids pcr based site specific mutagenesis analysis of protein dna specific interaction cell free protein synthesis and product electrophoretic and immunological analysis each protocol includes short background information a detailed description of the necessary materials step by step procedures a troubleshooting guide and useful practical hints the vitalbook e book version of genomes 3 is only available in the us and canada at the present time to purchase or rent please visit store.vitalsource.com/show/9780815341383 covering molecular genetics from the basics through to genome expression and molecular phylogenetics genomes 3 is the latest edition of this pioneering textbook updated to incorporate the recent major advances genomes 3 is an

invaluable companion for any undergraduate throughout their studies in molecular genetics

genomes 3 builds on the achievements of the previous two editions by putting genomes rather than genes at the centre of molecular genetics teaching recognizing that molecular biology research was being driven more by genome sequencing and functional analysis than by research into genes this approach has gathered momentum in recent years covering the whole range of molecular biology techniques genetic engineering as well as cytogenetics of plants each chapter begins with an introduction to the basic approach followed by detailed methods with easy to follow protocols and comprehensive troubleshooting the first part introduces basic molecular methodology such as dna extraction blotting production of libraries and rna cloning while the second part describes analytical approaches in particular rapd and rflp the manual concludes with a variety of gene transfer techniques and both molecular and cytological analysis as such this will be of great use to both the first timer and the experienced scientist this laboratory manual gives a thorough introduction to basic techniques it is the result of practical experience with each protocol having been used extensively in undergraduate courses or tested in the authors laboratory in addition to detailed protocols and practical notes each technique includes an overview of its general importance the time and expense involved in its application and a description of the theoretical mechanisms of each step this enables users to design their own modifications or to adapt the method to different systems

surzycki has been holding undergraduate courses and workshops for many years during which time he has extensively modified and refined the techniques described here this systematically designed laboratory manual elucidates a number of techniques which help the students carry out various experiments in the field of genetic engineering the book explains the methods for the isolation of dna and rna as well as electrophoresis techniques for dna rna and proteins it discusses dna manipulation by restriction digestion and construction of recombinant dna by ligation besides the book focuses on various methodologies for dna transformation and molecular hybridization while discussing all these techniques the book puts emphasis on important techniques such as dna isolation from gram positive bacteria including bacillus sp the slot lysis electrophoresis technique which is useful in dna profile analysis of both gram negative and positive bacteria plasmid transduction in bacillus sp and the conjugal transfer of plasmid dna in cyanobacteria bacillus and agrobacterium tumefaciens this book is intended for the undergraduate and postgraduate students of biotechnology for their laboratory courses in genetic engineering besides it will be useful for the students specializing in genetic engineering molecular biology and molecular microbiology key features includes about 60 different experiments contains several figures to reinforce the understanding of the techniques discussed gives useful information about preparation of stock solutions dna protein conversions restriction enzymes and their recognition sequences and so on in appendices this third edition of a practical guide to molecular cloning provides complete updates to all of the protocols and incorporates much new material to cover a broader range of biomolecular techniques it covers the key information required for students to perform cloning of any dna fragment and eventually study its expression products it also serves as an excellent comprehensive guide for any researcher using molecular techniques protocols in this established manual have been used successfully to characterize cellular localization nature and function of gene products in both prokaryotes and eukaryotes this book is the most accessible laboratory manual for those who want to understand why techniques work and how best to apply them presents reliable accurate and clear stepwise protocols includes all new coverage of genomics proteomics identification of targets and characterization of functional domains pcr applications such as mutagenesis and microarray technology and applications discusses the biochemistry underlying commonly seen kits in order that the reader will be able to use the kits to solve non classical problems includes new chapters on basic methods in microbiology basic methods in cellular biology methods for studying protein protein interactions sage phage display and methods for modifying the host genome includes numerous tables and an appendix of companies and useful websites dna microarray technology is a new and powerful means to analyze genomes and characterize patterns of gene expression its applications are widespread across the many fields of plant and animal biological and biomedical research this manual designed to extend and to complement the information in the best selling molecular cloning is a synthesis of the expertise and experience of more than 30 contributors all innovators in a fast moving field dna microarrays provides authoritative detailed instruction on the design construction and applications of microarrays as well as comprehensive descriptions of the software tools and strategies required for analysis of images and data offering detailed protocols for those needing to

construct a variety of maps and isolate genes this unique book is intended to popularize the new techniques of genome analysis derived from the human genome project the power of these new methods is often most striking when applied to problems outside of human genetics particularly the nonmammalian systems on which many researchers focus many of these organisms are economically important and biologically rich nonmammalian genomic analysis a practical guide covers the how to aspects of preparation handling cloning and analysis of large dna and the creation of chromosome and genome maps this lab manual facilitates the transfer of these technologies to small low tech environments and allows them to be used by those with no background in genome mapping or large fragment cloning like having a local expert this collection provides procedures for anyone anywhere and allows the replication of others success includes detailed and clearly written step by step protocols evinces expected results and offers trouble shooting advice provides techniques appropriate for small laboratories as well as those with limited resources covers a broad variety of cloning systems including single copy vectors discusses a diverse range of organisms from prokaryotes to eukaryotes from single celled organisms to highly complex organisms introduction to immunochemistry for molecular biologists and other nonspecialists spiral phage display technology has begun to make critical contributions to the study of molecular recognition dna sequences are cloned into phage which then present on their surface the proteins encoded by the dna individual phage are rescued through interaction of the displayed protein with a ligand and the specific phage is amplified by infection of bacteria phage display technology is powerful but challenging and the aim of this manual is to provide comprehensive instruction in its theoretical and applied so that any scientist with even modest molecular biology experience can effectively employ it the manual reflects nearly a decade of experience with students of greatly varying technical expertise and experience who attended a course on the technology at cold spring harbor laboratory phage display technology is growing in importance and power this manual is an unrivalled source of expertise in its execution and application a collection of forensic dna typing laboratory experiments designed for academic and training courses at the collegiate level crispr cas based techniques are revolutionizing the way geneticists and molecular biologists modify dna sequences and modulate gene expression in cells and organisms this laboratory manual presents step by step protocols for applying this cutting edge technology to any system of interest contributors describe approaches for de the ability to successfully clone genes underlies the majority of our knowledge in molecular and cellular biology gene cloning introduces the diverse array of techniques available to clone genes and how they can be used effectively both in the research laboratory to gain knowledge about the gene and for use in biotechnology medicine the pharmaceutical industry and agriculture it shows how cloning genes is an integral part of genomics and underlines its relevance in the post genomic age as a tool required to test predictions of gene regulation and function made through bioinformatics applications of gene cloning in medicine both for diagnosis and treatment and in the pharmaceutical industry and agriculture are also covered in the book gene cloning takes a fresh approach to teaching molecular and cellular biology and will be a valuable resource to both undergraduates and lecturers of biological and biomedical science courses

Molecular Cloning 2001

the first two editions of this manual have been mainstays of molecular biology for nearly twenty years with an unrivalled reputation for reliability accuracy and clarity in this new edition authors joseph sambrook and david russell have completely updated the book revising every protocol and adding a mass of new material to broaden its scope and maintain its unbeatable value for studies in genetics molecular cell biology developmental biology microbiology neuroscience and immunology handsomely redesigned and presented in new bindings of proven durability this three volume work is essential for everyone using today's biomolecular techniques the opening chapters describe essential techniques some well established some new that are used every day in the best laboratories for isolating analyzing and cloning dna molecules both large and small these are followed by chapters on cDNA cloning and exon trapping amplification of dna generation and use of nucleic acid probes mutagenesis and dna sequencing the concluding chapters deal with methods to screen expression libraries express cloned genes in both prokaryotes and eukaryotic cells analyze transcripts and proteins and detect protein protein interactions the appendix is a compendium of reagents vectors media technical suppliers kits electronic resources and other essential information as in earlier editions this is the only manual that explains how to achieve success in cloning and provides a wealth of information about why techniques work how they were first developed and how they have evolved

Molecular Cloning 1989

rev ed of molecular cloning a laboratory manual joseph sambrook david w russell 2001

Molecular cloning 2001

the condensed protocols from molecular cloning a laboratory manual is a single volume adaptation of the three volume third edition of molecular cloning a laboratory manual this condensed book contains only the step by step portions of the protocols accompanied by selected appendices from the world's best selling manual of molecular biology techniques each protocol is cross referenced to the appropriate pages in the original manual this affordable companion volume designed for bench use offers individual investigators the opportunity to have their own personal collection of short protocols from the essential molecular cloning

Molecular Cloning 2012

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The Condensed Protocols from Molecular Cloning 2006

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Molecular Cloning 1989

this manual is an indispensable tool for introducing advanced undergraduates and beginning graduate students to the techniques of recombinant dna technology or gene cloning and expression the techniques used in basic research and biotechnology laboratories are covered in detail students gain hands on experience from start to finish in subcloning a gene into an expression vector through purification of the recombinant protein the second edition has been completely re written with new laboratory exercises and all new illustrations and text designed for a typical 15 week semester rather than a 4 week intensive course the project approach to experiments was maintained students still follow a cloning project through to completion culminating in the purification of recombinant protein it takes advantage of the enhanced green fluorescent protein students can actually visualize positive clones following iptg induction cover basic concepts and techniques used in molecular biology research labs student tested labs proven successful in a real classroom laboratories exercises simulate a cloning project that would be performed in a real research lab project approach to experiments gives students an overview of the entire process prep list appendix contains necessary recipes and catalog numbers providing staff with detailed instructions

Molecular Cloning 1982

a complement to the bible of recombinant dna molecular cloning these manuals are essential for every laboratory in which genes are being studied

Molecular Cloning 2007

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Molecular cloning 1989

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research labs student tested labs proven successful in a real classroom laboratories exercises simulate a cloning project that would be performed in a real research lab project approach to experiments gives students an overview of the entire process prep list appendix contains necessary recipes and catalog numbers providing staff with detailed instructions

Molecular Cloning 2001

reflecting the various advances in the field this book provides comprehensive coverage of protein protein interactions it presents a collection of the technical and theoretical issues involved in the study of protein associations including biophysical approaches it also offers a collection of computational methods for analyzing interactions

Molecular cloning 2001

molecular biology techniques a classroom laboratory manual fourth edition is a must have collection of methods and procedures on how to create a single continuous comprehensive project that teaches students basic molecular techniques it is an indispensable tool for introducing advanced undergraduates and beginning graduate students to the techniques of recombinant dna technology or gene cloning and expression the techniques used in basic research and biotechnology laboratories are covered in detail students will gain hands on experience on subcloning a gene into an expression vector straight through to the purification of the recombinant protein presents student tested labs proven successful in real classroom laboratories includes a test bank on a companion website for additional testing and practice provides exercises that simulate a cloning project that would be performed in a real research lab includes a prep list appendix that contains necessary recipes and catalog numbers providing staff with detailed instructions

Molecular Cloning 2001

this manual introduces the reader to basic methods used in the isolation cloning and analysis of genetic material the protocols include rt pcr amplification gene cloning hybridization analysis and sequencing of nucleic acids pcr based site specific mutagenesis analysis of protein dna specific interaction cell free protein synthesis and product electrophoretic and immunological analysis each protocol includes short background information a detailed description of the necessary materials step by step procedures a troubleshooting guide and useful practical hints

Molecular cloning 2001

the vitalbook e book version of genomes 3 is only available in the us and canada at the present time to purchase or rent please visit store vitalsource com show 9780815341383 covering molecular genetics from the basics through to genome expression and molecular phylogenetics genomes 3 is the latest edition of this pioneering textbook updated to incorporate the recent major advances genomes 3 is an invaluable companion for any undergraduate throughout their studies in molecular genetics genomes 3 builds on the achievements of the previous two editions by putting genomes rather than genes at the centre of molecular genetics teaching recognizing that molecular biology research was being driven more by genome sequencing and functional analysis than by research into genes this approach has gathered momentum in recent years

Molecular Cloning 2012

covering the whole range of molecular biology techniques genetic engineering as well as cytogenetics of plants each chapter begins with an introduction to the basic approach followed by detailed methods with easy to follow protocols and comprehensive troubleshooting the first part introduces basic molecular methodology such as dna extraction blotting production of libraries and rna cloning while the second part describes analytical approaches in particular rapd and rflp the manual concludes with a variety of gene transfer techniques and both molecular and cytological

analysis as such this will be of great use to both the first timer and the experienced scientist

Molecular cloning : a laboratory manual. 1 2012

this laboratory manual gives a thorough introduction to basic techniques it is the result of practical experience with each protocol having been used extensively in undergraduate courses or tested in the authors laboratory in addition to detailed protocols and practical notes each technique includes an overview of its general importance the time and expense involved in its application and a description of the theoretical mechanisms of each step this enables users to design their own modifications or to adapt the method to different systems surzycki has been holding undergraduate courses and workshops for many years during which time he has extensively modified and refined the techniques described here

Molecular cloning : a laboratory manual. 2 2012

this systematically designed laboratory manual elucidates a number of techniques which help the students carry out various experiments in the field of genetic engineering the book explains the methods for the isolation of dna and rna as well as electrophoresis techniques for dna rna and proteins it discusses dna manipulation by restriction digestion and construction of recombinant dna by ligation besides the book focuses on various methodologies for dna transformation and molecular hybridization while discussing all these techniques the book puts emphasis on important techniques such as dna isolation from gram positive bacteria including bacillus sp the slot lysis electrophoresis technique which is useful in dna profile analysis of both gram negative and positive bacteria plasmid transduction in bacillus sp and the conjugal transfer of plasmid dna in cyanobacteria bacillus and agrobacterium tumefaciens this book is intended for the undergraduate and postgraduate students of biotechnology for their laboratory courses in genetic engineering besides it will be useful for the students specializing in genetic engineering molecular biology and molecular microbiology key features includes about 60 different experiments contains several figures to reinforce the understanding of the techniques discussed gives useful information about preparation of stock solutions dna protein conversions restriction enzymes and their recognition sequences and so on in appendices

Genome Analysis 2006

this third edition of a practical guide to molecular cloning provides complete updates to all of the protocols and incorporates much new material to cover a broader range of biomolecular techniques it covers the key information required for students to perform cloning of any dna fragment and eventually study its expression products it also serves as an excellent comprehensive guide for any researcher using molecular techniques protocols in this established manual have been used successfully to characterize cellular localization nature and function of gene products in both prokaryotes and eukaryotes this book is the most accessible laboratory manual for those who want to understand why techniques work and how best to apply them presents reliable accurate and clear stepwise protocols includes all new coverage of genomics proteomics identification of targets and characterization of functional domains pcr applications such as mutagenesis and microarray technology and applications discusses the biochemistry underlying commonly seen kits in order that the reader will be able to use the kits to solve non classical problems includes new chapters on basic methods in microbiology basic methods in cellular biology methods for studying protein protein interactions sage phage display and methods for modifying the host genome includes numerous tables and an appendix of companies and useful websites

Recombinant DNA Laboratory Manual 2014-05-12

dna microarray technology is a new and powerful means to analyze genomes and characterize patterns of gene expression its applications are widespread across the many fields of plant and animal biological and biomedical research this manual designed to extend and to complement the

information in the best selling molecular cloning is a synthesis of the expertise and experience of more than 30 contributors all innovators in a fast moving field dna microarrays provides authoritative detailed instruction on the design construction and applications of microarrays as well as comprehensive descriptions of the software tools and strategies required for analysis of images and data

Manipulation and Expression of Recombinant DNA

2005-12-15

offering detailed protocols for those needing to construct a variety of maps and isolate genes this unique book is intended to popularize the new techniques of genome analysis derived from the human genome project the power of these new methods is often most striking when applied to problems outside of human genetics particularly the nonmammalian systems on which many researchers focus many of these organisms are economically important and biologically rich nonmammalian genomic analysis a practical guide covers the how to aspects of preparation handling cloning and analysis of large dna and the creation of chromosome and genome maps this lab manual facilitates the transfer of these technologies to small low tech environments and allows them to be used by those with no background in genome mapping or large fragment cloning like having a local expert this collection provides procedures for anyone anywhere and allows the replication of others success includes detailed and clearly written step by step protocols evinces expected results and offers trouble shooting advice provides techniques appropriate for small laboratories as well as those with limited resources covers a broad variety of cloning systems including single copy vectors discusses a diverse range of organisms from prokaryotes to eukaryotes from single celled organisms to highly complex organisms

Cloning Vectors 1985

introduction to immunochemistry for molecular biologists and other nonspecialists spiral

Genome Analysis 1997

phage display technology has begun to make critical contributions to the study of molecular recognition dna sequences are cloned into phage which then present on their surface the proteins encoded by the dna individual phage are rescued through interaction of the displayed protein with a ligand and the specific phage is amplified by infection of bacteria phage display technology is powerful but challenging and the aim of this manual is to provide comprehensive instruction in its theoretical and applied so that any scientist with even modest molecular biology experience can effectively employ it the manual reflects nearly a decade of experience with students of greatly varying technical expertise and experience who attended a course on the technology at cold spring harbor laboratory phage display technology is growing in importance and power this manual is an unrivalled source of expertise in its execution and application

Genome Analysis 1997

a collection of forensic dna typing laboratory experiments designed for academic and training courses at the collegiate level

Molecular Biology Techniques 2011-10-18

crispr cas based techniques are revolutionizing the way geneticists and molecular biologists modify dna sequences and modulate gene expression in cells and organisms this laboratory manual presents step by step protocols for applying this cutting edge technology to any system of interest contributors describe approaches for de

Protein-protein Interactions 2005

the ability to successfully clone genes underlies the majority of our knowledge in molecular and cellular biology gene cloning introduces the diverse array of techniques available to clone genes and how they can be used effectively both in the research laboratory to gain knowledge about the gene and for use in biotechnology medicine the pharmaceutical industry and agriculture it shows how cloning genes is an integral part of genomics and underlines its relevance in the post genomic age as a tool required to test predictions of gene regulation and function made through bioinformatics applications of gene cloning in medicine both for diagnosis and treatment and in the pharmaceutical industry and agriculture are also covered in the book gene cloning takes a fresh approach to teaching molecular and cellular biology and will be a valuable resource to both undergraduates and lecturers of biological and biomedical science courses

Molecular Biology Techniques 2019-03-05**Basic Cloning Procedures 2012-12-06****Genomes 3 2007****Cloning Vectors 1987****Plant Molecular Biology — A Laboratory Manual 2013-11-27****Basic Techniques in Molecular Biology 2012-12-06*****Laboratory Manual For Genetic Engineering 2009-01-01*****A Practical Guide to Molecular Cloning 2008-10-01*****DNA Microarrays 2003******Nonmammalian Genomic Analysis 1996-09-25*****Antibodies 1988*****Phage Display 2001*****Forensic DNA Biology 2012-09-11**

CRISPR-Cas 2016

Gene Cloning 2007-01-24

Recombinant DNA Laboratory Manual 1999

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