the cloning sourcebook

#cloning guide #cloning techniques #genetic engineering #bioethics #molecular biology

Explore the fascinating and complex world of cloning with this comprehensive sourcebook. Delve into various cloning techniques, understand the principles of genetic engineering, and navigate the intricate landscape of bioethics and molecular biology that shape this scientific field. This essential guide offers deep insights for students, researchers, and anyone curious about the future of biotechnology.

Our collection serves as a valuable reference point for researchers and educators.

The Cloning Sourcebook

Animal cloning has developed quickly since the birth of Dolly the sheep. Yet many of the first questions to be raised still need to be answered. What do Dolly and her fellow mouse, cow, pig, goat and monkey clones mean for science? And for society? Why do so many people respond so fearfully to cloning? What are the ethical issues raised by cloning animals, and in the future, humans? How are the makers of public policy coping with the stunning fact that an entire animal can be reconstructed from a single adult cell? And that humans might well be next? The Cloning Source Book addresses all of these questions in a way that is unique in the cloning literature, by grounding what is effectively an interdisciplinary conversation in solid science. In the first section of the book, the key scientists responsible for the early and crucial developments in cloning speak to us directly, and other scientists evaluate and comment on these developments. The second section explores the context of cloning and includes sociological, mythological, and historical perspectives on science, ethics, and policy. The authors also examine the media's treatment of the Dolly story and its aftermath, both in the United States and in Britain. The third section, on ethics, contains a broad range of papers written by some of the major commentators in the field. The fourth section addresses legal and policy issues. It features individual and collective contributions by those who have actually shaped public policy on reproductive cloning, therapeutic cloning, and similarly contentious bioethical issues in the United States, Britain, and the European Union. Animal cloning continues for agricultural and medicinal purposes, the latter in combination with transgenics. Human cloning for therapeutic purposes has recently been made legal in Britain. The goal is to produce an early embryo and then derive stem cells that are immunologically matched to the donor. Two human reproductive cloning projects have been announced, and there are almost certainly others about which we know nothing. Sooner or later a cloned human will be born. Many lessons can be learned from the cloning experience. Most importantly, there needs to be a public conversation about the permissible uses of new and morally murky technologies. Scientists, journalists, ethicists and policy makers all have roles to play, but cutting-edge science is everybody's business. The Cloning Sourcebook provides the tools required for us to participate in shaping our own futures.

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A Clone of Your Own?

Someday soon, if it hasn't happened in secret already, the first cloned human will be born and mankind will embark on a scientific and moral journey whose destination cannot be foretold. In A Clone of Your Own?, Arlene Judith Klotzko describes the new world of possibilities that can be glimpsed over the horizon. In a lucid and engaging narrative, she explains that the technology to create clones of living beings already exists, inaugurated in 1996 by Dolly the sheep, the first mammal cloned from a single adult cell. Our fascination with cloning is about much more than science and its extraordinary medical implications. In riveting prose, full of allusions to art, music, and the cinema, Klotzko shows why the prospect of human cloning triggers our dearest hopes and especially our darkest fears, forcing us to ponder anew what it means to be human, and what it would be like to have 'a clone of your own'.

Perfect Copy

Cloning is some of the most exciting science and one of the most keenly fought moral debates of our time. Perfect Copy is a uniquely accessible exploration this most vexed and pressing issue. In 1997 Ian Wilmut and his team announced that they had done what many thought to be impossible. They had cloned a mammal from an adult cell. This breakthrough prompted immediate calls for the new technology of mammalian cloning to be used on humans. Italian fertility specialist Severino Antinori hopes to use cloning 'within two years' to give 200 infertile couples the opportunity to at last become parents. Cloning may also solve, once and for all, the problem of rejection that bedevils transplant surgery. Perhaps it even holds the promise of eternal life. But plans to clone humans have triggered a storm of protest. Scientists including Wilmut, politicians from left and right, and theologians from almost all religions find the idea abhorrent. We cannot possibly decide who is right in this debate unless we have a good understanding of what a human clone is and how one would be created. Nicholas Agar unravels the science - and the ethics - of cloning and begins to show how we should approach this fantastically problematic area.

In his image - the cloning of a man

This book provides a timely and important discussion of the potential value of cloning and of the ethical choices that this radical new technology has raised, including the issues surrounding the current status of stem-cell research. As leader of the team that produced Dolly, the first animal to be cloned from an adult cell, Ian Wilmut has played a unique role both in the science of cloning and the ensuing

international debate about its implications. He has testifed before parliamentary and congressional committees in the UK, France and the US and given many public lectures on the subject, in addtion to participating in numerous panel discussions on the uses of cloning. AFTER DOLLY: THE USES AND MISUSES OF HUMAN CLONING distils the essence of the current scientific and social policy discussions around these critically important issues and presents them in an understandable manner so the educated reader can have an informed opinion.

After Dolly

Presents the story of Dolly, the first mammal cloned from DNA, along with the biographical information on the scientists who created her, and sidebars chronicling historical events and key historical figures of the period.

Cloning

In Human Cloning a panel of distinguished philosophers, medical ethicists, religious thinkers, and social critics tackle the thorny problems raised by the now real possibility of human cloning. In their wide ranging reviews, the distinguished contributors critically examine the major arguments for and against human cloning, probe the implications of such a procedure for society, and critically evaluate the "Report and Recommendations of the National Bioethics Advisory Commission." The debate includes both religious and secular arguments, as well as an outline of the history of the cloning debate and a discussion of human cloning's impact on our sense of self and our beliefs about the meaning of life.

Human Cloning

John Harris presents an informed defence of human cloning, carefully exposing the rhetorical and highly dubious arguments against it. He shows that far from ending the diversity of human life, cloning has the power to improve and heal human life.

On Cloning

Examines various sides of the cloning debate.

Cloning

Presents essays with varying points of view on the controversial issue of cloning, discussing the cloning of animals, therapeutic cloning for medical research, and the possibility of cloning humans.

Cloning

Primary sources discuss the early history of cloning, the cloning of Dolly the sheep, controversies in cloning, and recent developments in cloning.

Cloning

"The cloning of Dolly in 1996 from the cell of an adult sheep was a pivotal moment in history." "In this definitive account, the scientists who accomplished this stunning feat explain their hypotheses and experiments, their conclusions, and the implications of their work. Researchers have already incorporated into sheep the gene for human factor IX, a blood-clotting protein used to treat hemophilia. In the future, cultures of mammary cells may prove to be valuable donor material, and genetically modified animal organs may be transplanted into humans." "But what are the ethical issues raised by this pioneering research, and how are we to reconcile them with the enormous possibilities?"--BOOK JACKET.Title Summary field provided by Blackwell North America, Inc. All Rights Reserved

The Second Creation

The New Biology is a 10-volume set that has evolved to accommodate new material and new areas of research, in keeping with the expansion of the biological disciplines and the development and application of research technologies in and out of the scientific laboratory. Since its publication several years ago, the set now includes four new volumes that focus on issues that cover the spectrum of human health, maintenance, and stability. Animal Cloning, Revised Edition is a compelling presentation of the questions, controversies, and motivations surrounding this extraordinary area of science. The book features an unbiased view of the complex debate surrounding cloning technology, especially with

regard to therapeutic and reproductive cloning using stem cells harvested from human embryos. The ability to clone a mammal was the culmination of research in cell and developmental biology that goes back to the late 1800s. From the origin of the idea of cloning a mammal in 1898 to the reality of cloned animals in the 20th and 21st centuries to recent worldwide findings on the scientific and ethical aspects of cloning, this volume covers all facets of this unusual technology. The volume includes information on the "birth" of the cloned sheep Dolly commercialization of animal cloning current spectrum of clones ethical and legal issues of cloning history of animal cloning organ farming therapeutic cloning transgenic clones The book contains nearly 50 color photographs and line illustrations, a Resource Center of supporting materials in cell biology and biotechnology, a glossary, a list of print and Internet resources, and an index. The New Biology set is essential for middle and high school students, teachers, and general readers who wish to understand the latest information on this controversial area of scientific research. Book jacket.

Animal Cloning

A novel about split personality, about the components of the self and genetic engineering. It tells the fate of Joanna May, who at the age of 60 discovers that she has been cloned and there are in fact four other versions of herself in existence.

The Cloning of Joanna May

Cloning is the production of a cell or organism with the same nuclear genome as another cell or organism. Reproductive cloning is the production of a human fetus from a single cell by nuclear replacement, while therapeutic cloning produces human stem cells, tissues and organs without resulting in the production of genetically identical fetuses or babies. There appears to be a global consensus against using cloning techniques for reproductive purposes, in spite of inconsistency in the regulation of these techniques between countries. Australian scientists will now be able to create cloned human embryos after federal Parliament recently voted to overturn a 2002 ban on the research in a rare conscience vote. The decision gives hope to thousands of Australians living with debilitating diseases, however ongoing advances in biotechnology continue to raise often difficult ethical and moral questions in the community debate about cloning and stem cell science. What are the latest breakthroughs in animal and human reproductive cloning, therapeutic cloning and stem cell research? What are the ethical issues raised by this research?Chapter 1: Stem Cell Research and Cloning in AustraliaChapter 2: Arguments Opposed to Cloning and Embryonic Stem Cell ResearchChapter 3: Arguments in Favour of Cloning and Embryonic Stem Cell ResearchGlossary; Facts and Figures; Additional Resources; Index

Cloning and Stem Cell Research

Recent advances in science have provoked debate about where cloning will take us. This book considers the social and ethical considerations of cloning, including whether cloning humans is acceptable, whether people are willing eat cloned food and whether we should take advantage of medical therapies associated with cloning.

The Cloning Debate

The cloning of the sheep Dolly in 1997 has generated enormous controversy on the moral, ethical, and biological implications of cloning. This anthology presents a wide range of opinions on the subject from Ian Wilmut (the scientist who cloned Dolly), Richard Dawkins, Leon Kass, and other knowledgeable authors.

Cloning

What makes a person who they are? This is one of the fundamental questions of human life. Scientists of the 21st century have made rapid advances in cloning and editing human DNA and cells, even if their understanding of how human characteristics are shaped is still relatively new. Readers will learn about three life-changing pieces of genetic technology--from therapeutic cloning to embryonic gene editing. By exploring these innovations and how they work, students will expand their learning of biology, genetics, and other STEM fields. At just 32 pages, Full Tilt Fast Reads help striving middle school readers build reading stamina and stay engaged with high-interest low-level content and dynamic topics.

Scientific and Medical Aspects of Human Reproductive Cloning

"The cloning debate looks at the latest developments relating to the possible cloning of human beings ; the major arguments for and against human reproductive and therapeutic cloning ; and recent developments and issues involving the cloning of animals." - back cover.

The Clone

The terms 'recombinant DNA technology', 'DNA cloning', 'molecular cloning' or 'gene cloning' all refer to the same process: the transfer of a DNA fragment of interest from one organism to a self-replicating genetic element such as a bacterial plasmid. The DNA of interest can then be propagated in a foreign host cell. This technology has been around since the 1970s, and it has become a common practice in molecular biology labs today. Reproductive cloning is a technology used to generate an animal that has the same nuclear DNA as another currently or previously existing animal. Dolly was created by reproductive cloning technology. In a process called 'somatic cell nuclear transfer' (SCNT), scientists transfer genetic material from the nucleus of a donor adult cell to an egg whose nucleus, and thus its genetic material, has been removed. The reconstructed egg containing the DNA from a donor cell must be treated with chemicals or electric current in order to stimulate cell division. Once the cloned embryo reaches a suitable stage, it is transferred to the uterus of a female host where it continues to develop until birth. Therapeutic cloning, also called "embryo cloning," is the production of human embryos for use in research. The goal of this process is not to create cloned human beings, but rather to harvest stem cells that can be used to study human development and to treat disease. Stem cells are important to biomedical researchers because they can be used to generate virtually any type of specialised cell in the human body. This new book presents an up-to-date Chronology of Cloning along with current and selected abstracts dealing with cloning as well as a guide to books on the topic. Access to the abstract and books sections is provided by title, subject and author indexes.

Cloning Humans

This book provides an intensive exploration of recent popular representations of human cloning, genetics and the concerns which they generate and mobilise. It is a timely contribution to current debates about the public communication of science and about the cultural and political stakes in those debates. Taking the UK as its main case study, with cross-cultural comparisons with the USA and South Korea, the book explores the proposition that genomics is ‘the publicly mediated science par excellence’, through detailed reference to the rhetoric and images around human reproductive and therapeutic cloning which have proliferated in the wake of the ‘completion’ of the Human Genome Project (2000). The book offers a set of distinctive analyses of media and cultural texts – including press and television news, Hollywood and independent film drama, documentaries, art exhibits and websites – and in dialogue with the producers and consumers of these texts. From these investigations, key issues are foregrounded: the image of the scientist, scientific expertise and institutions; the governance of science; the representation of women’s bodies as the subjects and objects of biotechnology; and the constitution of publics, both as objects of media debate, and as their intended audience. This examination demonstrates the importance of mediation, media institutions, and media texts in the production of scientific knowledge. Countering models that see ‘the media’ as simply a channel through which scientific knowledge passes, this book will emphasise the importance of communications technologies in the production of modern scientific knowledge and their particular significance in contemporary genomics. It will argue that human genomic science – and cloning as its current iconic manifestation – has to be understood as a complex cultural production.

The Cloning Debate

Enzymes, which work as organic catalysts for chemical reactions, are of interest to a wide range of scientific disciplines. The Source Book of Enzymes provides a worldwide listing of commercially available enzymes, offering the widest possible selection of enzyme products for specific applications. The Source Book of Enzymes answers these important questions and many more: Where can I find a particular enzyme? What enzymes are available for purchase? How do I select the appropriate enzyme for my application? How do the available enzymes differ from one another? What are the reaction conditions for optimum enzyme performance? Who sells the enzyme I need? The reliable research tool you will turn to again and again With the Source Book of Enzymes you will save hours of research time once wasted on searching through catalogs and product data bulletins. This practical reference tool makes the selection process easy by providing systematic and comparative functional information

about each enzyme. Its global scope ensures that you will find the enzyme and supplier most suited to your needs and geographical location. Students and educators; researchers in academia, industry and government; bioengineers and biotechnologists, and purchasing agents will find this an invaluable resource for conducting competitive assessments, identifying new product trends and opportunities, identifying enzyme properties, and ordering specific enzymes.

Cloning

The explosion of scientific information is exacerbating the information gap between richer/poorer, educated/less-educated publics. The proliferation of media technology and the popularity of the Internet help some keep up with these developments but also make it more likely others fall further behind. This is taking place in a globalizing economy and society that further complicates the division between information haves and have-nots and compounds the challenge of communicating about emerging science and technology to increasingly diverse audiences. Journalism about science and technology must fill this gap, yet journalists and journalism students themselves struggle to keep abreast of contemporary scientific developments. Scientist - aided by public relations and public information professionals - must get their stories out, not only to other scientists but also to broader public audiences. Funding agencies increasingly expect their grantees to engage in outreach and education, and such activity can be seen as both a survival strategy and an ethical imperative for taxpayer-supported, university-based research. Science communication, often in new forms, must expand to meet all these needs. Providing a comprehensive introduction to students, professionals and scholars in this area is a unique challenge because practitioners in these fields must grasp both the principles of science and the principles of science communication while understanding the social contexts of each. For this reason, science journalism and science communication are often addressed only in advanced undergraduate or graduate specialty courses rather than covered exhaustively in lower-division courses. Even so, those entering the field rarely will have a comprehensive background in both science and communication studies. This circumstance underscores the importance of compiling useful reference materials. The Encyclopedia of Science and Technology Communication presents resources and strategies for science communicators, including theoretical material and background on recent controversies and key institutional actors and sources. Science communicators need to understand more than how to interpret scientific facts and conclusions; they need to understand basic elements of the politics, sociology, and philosophy of science, as well as relevant media and communication theory, principles of risk communication, new trends, and how to evaluate the effectiveness of science communication programmes, to mention just a few of the major challenges. This work will help to develop and enhance such understanding as it addresses these challenges and more. Topics covered include: advocacy, policy, and research organizations environmental and health communication philosophy of science media theory and science communication informal science education science journalism as a profession risk communication theory public understanding of science pseudo-science in the news special problems in reporting science and technology science communication ethics.

Human Cloning in the Media

Exploring the controversy surrounding therapeutic human cloning, this book draws upon data collected from news articles and interviews with journalists to examine the role of mass media in shaping biomedical controversies. With specific reference to the US and the UK as two leading scientific nations grappling with the global issue of therapeutic cloning, together with attention to the important role played by nations in Southeast Asia, this book sheds light on media representations of scientific developments, the unrealistic hype that can surround them, the influence of religion and the potentially harmful imposition of journalistic and nationalist values on the scientific field. Empirically grounded and theoretically innovative, The Therapeutic Cloning Debate will appeal to social scientists across a range of disciplines with interests in science communication, public engagement, cultural and media studies, science politics, science journalism, the sociology of expert knowledge and risk. It will also appeal to scientists, journalists, policymakers and others interested in how news media frame science for the public.

Source Book of Enzymes

John Harris presents an informed defence of human cloning, carefully exposing the rhetorical and highly dubious arguments against it. He shows that far from ending the diversity of human life, cloning has the power to improve and heal human life.

Encyclopedia of Science and Technology Communication

A Clone of Your Own? by Arlene Judith Klotzko takes a close look at the inevitability of cloning, and the ethical, legal, and philosophical issues surrounding it.

The Therapeutic Cloning Debate

The natural world is marked by an ever-increasing loss of varied habitats, a growing number of species extinctions, and a full range of new kinds of dilemmas posed by global warming. At the same time, humans are also working to actively shape this natural world through contemporary bioscience and biotechnology. In Cloning Wild Life, Carrie Friese posits that cloned endangered animals in zoos sit at the apex of these two trends, as humans seek a scientific solution to environmental crisis. Often fraught with controversy, cloning technologies, Friese argues, significantly affect our conceptualizations of and engagements with wildlife and nature. By studying animals at different locations, Friese explores the human practices surrounding the cloning of endangered animals. She visits zoos—the San Diego Zoological Park, the Audubon Center in New Orleans, and the Zoological Society of London—to see cloning and related practices in action, as well as attending academic and medical conferences and interviewing scientists, conservationists, and zookeepers involved in cloning. Ultimately, she concludes that the act of recalibrating nature through science is what most disturbs us about cloning animals in captivity, revealing that debates over cloning become, in the end, a site of political struggle between different human groups. Moreover, Friese explores the implications of the social role that animals at the zoo play in the first place—how they are viewed, consumed, and used by humans for our own needs. A unique study uniting sociology and the study of science and technology, Cloning Wild Life demonstrates just how much bioscience reproduces and changes our ideas about the meaning of life itself.

On Cloning

A unique guide to the design and implementation of simulation software This book offers a concise introduction to the art of building simulation software, collecting the most important concepts and algorithms in one place. Written for both individuals new to the field of modeling and simulation as well as experienced practitioners, this guide explains the design and implementation of simulation software used in the engineering of large systems while presenting the relevant mathematical elements, concept discussions, and code development. The book approaches the topic from the perspective of Zeigler's theory of modeling and simulation, introducing the theory's fundamental concepts and showing how to apply them to engineering problems. Readers will learn five necessary skills for building simulations of complicated systems: Working with fundamental abstractions for simulating dynamic systems Developing basic simulation algorithms for continuous and discrete event models Combining continuous and discrete event simulations into a coherent whole Applying strategies for testing a simulation Understanding the theoretical foundations of the modeling constructs and simulation algorithms The central chapters of the book introduce, explain, and demonstrate the elements of the theory that are most important for building simulation tools. They are bracketed by applications to robotics, control and communications, and electric power systems; these comprehensive examples clearly illustrate how the concepts and algorithms are put to use. Readers will explore the design of object-oriented simulation programs, simulation using multi-core processors, and the integration of simulators into larger software systems. The focus on software makes this book particularly useful for computer science and computer engineering courses in simulation that focus on building simulators. It is indispensable reading for undergraduate and graduate students studying modeling and simulation, as well as for practicing scientists and engineers involved in the development of simulation tools.

A Clone of Your Own?

Appraises the global significance of controversial French author Michel Houellebecq's novelistic visions and philosophical position.

Cloning Wild Life

A biblically informed guidebook for Christians facing difficult health care decisions, from the making of life (infertility, organ donation, cloning) and taking of life (abortion, euthanasia) to the technologically driven faking of life (genetic engineering, etc.).

Contemporary Debates in Bioethics

Provides updated information about the effects of the environment on human health.

Michel Houellebecq

For decades, Professor Michael Freeman has without doubt been one of the world's most infuential scholars in international children's rights. His scholarship has been at the forefront of the field and has helped shape many of the developments within it. This collection offers the reader a thought-provoking snapshot of some of his most seminal essays, written and/or published over the past 30 years. Together they highlight above all the interdisciplinary nature of the issues he discusses. Legal doctrinal questions that make the case for recognising that children have rights are of course discussed. But aspects of moral and political philosophy are dealt with as well, in addition to, among other other disciplines, history, theology, psychology and antropology.

Christian Bioethics

Contemporary Moral Issues is an anthology that provides a selection of readings on contemporary social issues revolving around three general themes: Matters of Life and Death, Matters of Equality and Diversity, and Expanding the Circle, which includes duties beyond borders, living together with animals, and environmental ethics. The text contains a number of distinctive, high-profile readings and powerful narratives, including Jonathan Foer's "Eating Animals," Eva Feder Kittay's "On the Ethics of Selective Abortion for Disability," and Susan M. Wolf's "Confronting Assisted Suicide and Euthanasia: My Father's Death." Each set of readings is accompanied by an extensive introduction, a bibliographical essay, pre-reading questions, and discussion questions.

Environmental Health Sourcebook

This authoritative book gathers together a broad range of ideas and topics that define the field. It provides clear, concise, and comprehensive coverage of all aspects of cellular physiology from fundamental concepts to more advanced topics. The Third Edition contains substantial new material. Most chapters have been thoroughly reworked. The book includes chapters on important topics such as sensory transduction, the physiology of protozoa and bacteria, the regulation of cell division, and programmed cell death. Completely revised and updated - includes 8 new chapters on such topics as membrane structure, intracellular chloride regulation, transport, sensory receptors, pressure, and olfactory/taste receptors Includes broad coverage of both animal and plant cells Appendixes review basics of the propagation of action potentials, electricity, and cable properties Authored by leading experts in the field Clear, concise, comprehensive coverage of all aspects of cellular physiology from fundamental concepts to more advanced topics

The Human Rights of Children

This book examines the complex ways in which television articulates ideas about DNA in the early 21st century. Considering television’s distinct aesthetic and narrative forms, as well as its specific cultural roles, it identifies TV as a key site for the genetic imaginary. The book addresses the key themes of complexity and kinship, which function as nodes around which older essentialist notions about the human genome clash with newly emergent post-genomic sensibilities. Analysing a wide range of US and UK programmes, from science documentaries, science fiction serials and crime procedurals, to family history programmes, sitcoms and reality shows, Television and the Genetic Imaginary illustrates the extent to which molecular frameworks of understanding now permeate popular culture.

Contemporary Moral Issues

Cell Physiology Source Book