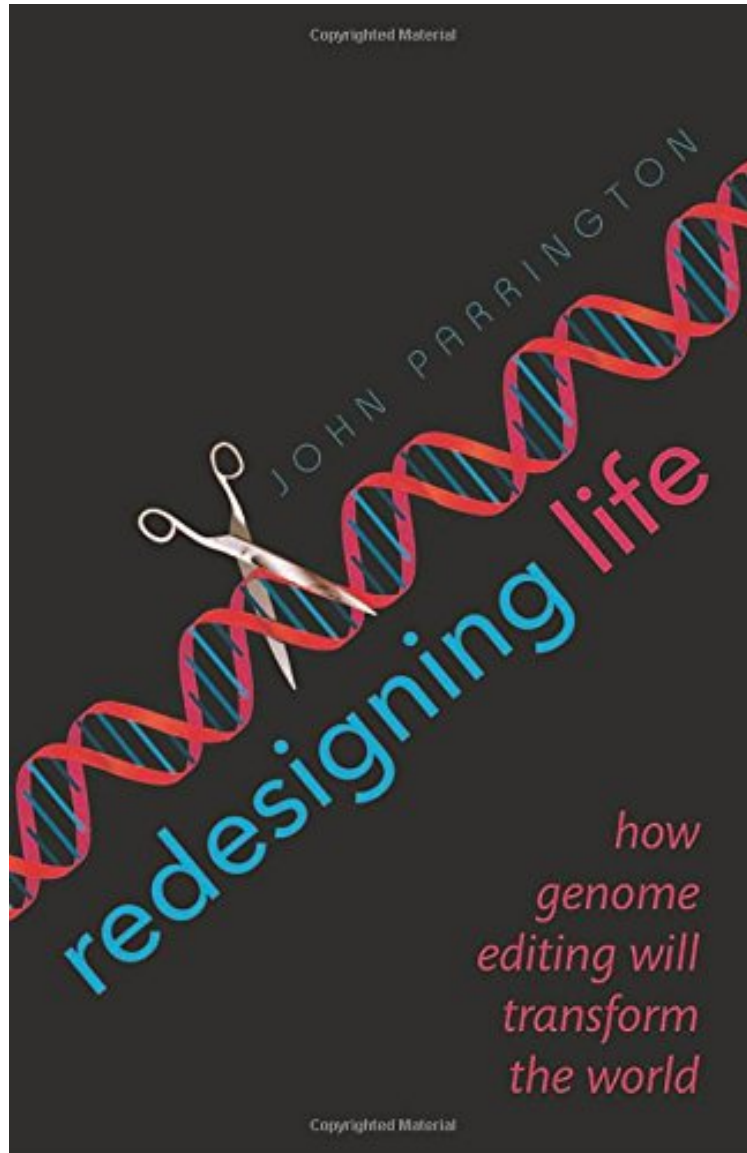


[Ebook pdf] Redesigning Life: How genome editing will transform the world

Redesigning Life: How genome editing will transform the world

John Parrington

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John Parrington : Redesigning Life: How genome editing will transform the world before purchasing it in order to gage whether or not it would be worth my time, and all praised Redesigning Life: How genome editing will transform the world:

0 of 1 people found the following review helpful. Four StarsBy KNNThe author's arguments are engaging and could

be a reflection of the future² of 4 people found the following review helpful. Welcome to the future of medicine. By S. Cooper This book is an excellent introduction to the emerging science of gene editing. The promise of gene therapy for treating inherited and acquired diseases is limitless. Highly recommended for laypersons who wish to know more about this revolutionary field.

Since the birth of civilisation, human beings have manipulated other life-forms. We have selectively bred plants and animals for thousands of years to maximize agricultural production and cater to our tastes in pets. The observation of the creation of artificial animal and plant variants was a key stimulant for Charles Darwin's theory of evolution. The ability to directly engineer the genomes of organisms first became possible in the 1970s, when the gene for human insulin was introduced into bacteria to produce this protein for diabetics. At the same time, mice were modified to produce human growth hormone, and grew huge as a result. But these were only our first tottering steps into the possibilities of genetic engineering. In the past few years, the pace of progress has accelerated enormously. We can now cut and paste genes using molecular scissors with astonishing ease, and the new technology of genome editing can be applied to practically any species of plants or animals. 'Mutation chain reaction' can be used to alter the genes of a population of pests, such as flies; as the modified creatures breed, the mutation is spread through the population, so that within a few generations the organism is almost completely altered. At the same time, scientists are also beginning to synthesize new organisms from scratch. These new technologies hold much promise for improving lives. Genome editing has already been used clinically to treat AIDS patients, by genetically modifying their white blood cells to be resistant to HIV. In agriculture, genome editing could be used to engineer species with increased food output, and the ability to thrive in challenging climates. New bacterial forms may be used to generate energy. But these powerful new techniques also raise important ethical dilemmas and potential dangers, pressing issues that are already upon us given the speed of scientific developments. To what extent should parents be able to manipulate the genetics of their offspring - and would designer babies be limited to the rich? Can we effectively weigh up the risks from introducing synthetic lifeforms into complex ecosystems? John Parrington explains the nature and possibilities of these new scientific developments, which could usher in a brave, new world. We must rapidly come to understand its implications if we are to direct its huge potential to the good of humanity and the planet.

These rapid advances in genetic engineering are undoubtedly fuel for controversy and heated debate. As Parrington states unequivocally, these discussions are crucial, and they must take place with an informed understanding of the limits and possibilities of the technology currently available. *Redesigning Life* is an excellent place to begin this process. * Socialist * Parrington's clear descriptions and diagrams combined with interesting snippets from the narrative and biography of scientific discovery make the science behind these developments readily accessible. Their relevance to our everyday lives is also highlighted with Parrington continually drawing connections between advances in the lab and their real world application. * Socialist * John Parrington's engaging and thoughtful book explains the science behind recent rapid advances in genetic engineering that mean it is increasingly possible to enact precise changes at a molecular level. * Socialist * painstakingly researched ... the examples themselves are clear, concise and often arresting ... an engaging and comprehensive introduction * Thomas Christie Williams, LSE Business * Parrington economically covers a huge swath of material, including a discussion of artificial genetic materials, and successfully communicates the excitement and relentless pace of the developments in this field. * Adrian Woolfson, Science * a comprehensive digest of the extraordinary scientific material relevant to the topic of gene editing. Parrington presents himself as the trusted tour guide of the latest developments in this rapidly advancing area of investigation, lacing his accounts with a number of charming analogies and anecdotes. * Adrian Woolfson, Science * a thorough and comprehensive account of the methodologies for altering life that have been or are being developed, and the directions that they may take in future. * John Harris, Nature * There is a revolution going on in the life sciences, one that has already transformed scientific discovery and will soon change medicine. It could even see us altering the ecosystem in a precise, targeted way. This revolution has a name - CRISPR - and the key part of John Parrington's *Redesigning Life* is a good summary of the gene-editing technique that lies behind the acronym. * Matthew Cobb, New Scientist * a comprehensive digest of the extraordinary scientific material relevant to the topic of gene editing. Parrington presents himself as the trusted tour guide of the latest developments in this rapidly advancing area of investigation. * Science Magazine * About the Author John Parrington, University Lecturer in Pharmacology, University of Oxford John Parrington is an Associate Professor in Molecular and Cellular Pharmacology at the University of Oxford, and a Tutorial Fellow in Medicine at Worcester College, Oxford. He has published over 80 peer-reviewed articles in science journals including Nature, Current Biology, Journal of Cell Biology, Journal of Clinical Investigation, The EMBO Journal, Development, Developmental Biology, and Human Reproduction. He has extensive experience writing popular science, having published articles in The Guardian, New Scientist, Chemistry World, and The Biologist. He has also written science reports for the Wellcome Trust, British Council, and Royal Society. He is the author of *The Deeper Genome*, (OUP, 2015).