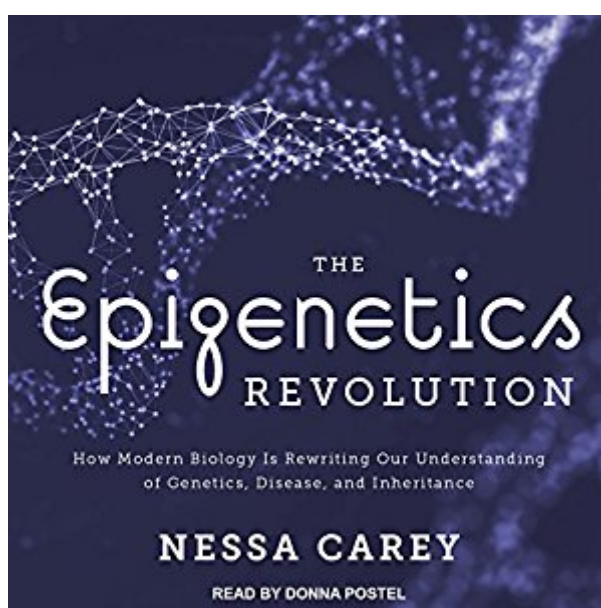


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# The Epigenetics Revolution: How Modern Biology Is Rewriting Our Understanding Of Genetics, Disease, And Inheritance



## Synopsis

Epigenetics can potentially revolutionize our understanding of the structure and behavior of biological life on Earth. It explains why mapping an organism's genetic code is not enough to determine how it develops or acts and shows how nurture combines with nature to engineer biological diversity. Surveying the 20-year history of the field while also highlighting its latest findings and innovations, this volume provides a readily understandable introduction to the foundations of epigenetics. Nessa Carey, a leading epigenetics researcher, connects the field's arguments to such diverse phenomena as how ants and queen bees control their colonies, why tortoiseshell cats are always female, why some plants need cold weather before they can flower, and how our bodies age and develop disease. Reaching beyond biology, epigenetics now informs work on drug addiction, the long-term effects of famine, and the physical and psychological consequences of childhood trauma. Carey concludes with a discussion of the future directions for this research and its ability to improve human health and well-being.

## Book Information

Audible Audio Edition

Listening Length: 11 hours 16 minutes

Program Type: Audiobook

Version: Unabridged

Publisher: Tantor Audio

Audible.com Release Date: May 23, 2017

Whispersync for Voice: Ready

Language: English

ASIN: B072BQ37PG

Best Sellers Rank: #18 in Books > Medical Books > Basic Sciences > Cell Biology #26

in Books > Science & Math > Biological Sciences > Biology > Molecular Biology #31

in Books > Engineering & Transportation > Engineering > Bioengineering > Biochemistry

## Customer Reviews

The "Epigenetics Revolution" is a book every educated person should read. I studied genetics in college extensively, and learned to think in traditional ways about the role of DNA and genetic expression. This book is an educational upgrade for me. Nessa Carey presents the material using research summations with very understandable analogies. I especially like her comparison of the lego blocks in her discussion on the building of proteins. The study of epigenetics is a revolutionary

breakthrough in Biology. It has the potential to affect everything from Psychiatry, to Criminal Justice, social understanding, and of course medicine.

I had to read excerpts from this book for a graduate level biology class. I was so interested in learning more about how epigenetics is changing our understanding of inheritance that I had to purchase it and read more. This should be required reading for all "older" biology teachers. Highly recommended!

Message Casey's book on epigenetics was the perfect book for me. It breaks down a complex subject in a branch of science that is relatively new to a level of understanding for every curious mind. It is a relatively easy-read. What I appreciated a lot about the subject was how definitions of scientific terms were clearly explained and introduced, giving readers a good general understanding of Epigenetics. If you are looking for a book that introduces you to this amazing branch of science in a simplistic way, then this is the book for you!

What a refreshingly erudite and informative book! It was in-depth, at times jam packed with information, particularly for a person with no biology background, but the author went to great length to explain in a very understandable manner some of the complexity of epigenetics, genetics and the current state of our knowledge about these subjects. I highly recommend this book for the interested reader.

PRO: An extremely well-written state-of-the-art look at the science of epigenetics. It has numerous examples from biology and a wealth of detail (which is also its biggest con at times). Carey also describes how science really works- how it eventually gets closer to the truth...even though there are usually false paths along the way. CON: At times, the book has too much technical detail, which can be overwhelming (multiple reads are definitely required).

This is one of those books that introduces an entirely new and fascinating topic. A similar work would be *Chaos: Making a New Science* which introduced the concepts of chaotic dynamical systems at a time when even many practitioners of the sciences would not have heard of it. Similarly, this book introduces the discoveries in epigenetics (epi- meaning "on", or a layer on top of classical genetics) and pretty much all of this will be new information unless you have been actively working in the field of cell biology over the past few years. The book talks about the

paradigm shift that is occurring as cell biologists are realizing that this epigenetic information is as complex and important to the correct function of life as the underlying DNA genome, and even allows for Lamarckian inheritance in certain cases where an offspring's own epigenetic information and phenotype can be influenced by that of the parents, meaning that some environmental effects in a parent's life can directly influence future generations. Also much of the non-protein-coding genome that for many years was considered to be unimportant "junk" is now turning out to be very important as it can be transcribed into functional RNA molecules that perform important functions. The book contains a simple graphic showing that the ratio of the non-protein-coding DNA to that of traditional protein coding genes increases in direct proportion with the complexity of the organism. The fundamental genes and proteins between say a chimpanzee and a human are virtually identical and it now begins to look as though it's that "junk" DNA that makes all the difference. This is a fascinating look at recent developments in the ever-accelerating biological revolution and I highly recommend it to everyone who yearns to understand how life works. G.

Now I think I really know what a "stem cell" is. Our statesmen in Congress spend so much time in voters' bedrooms and bathrooms, it would be nice if they read this book. Or not. It takes a very little high school biology to understand, and in my Kindle I could rely on an easy-access dictionary. So I plowed through it and found it rewarding. Reading "pop" science on embryology and cells is almost a hobby for me and of the half-dozen such books I've read this year on those basics, this is perhaps the best. These are rapidly changing fields of knowledge and it is worthwhile knowing what is going on.

Well written with plenty of interesting information. This subject is something that will be coming more and more into our collective consciousness' as we seek to understand just how important our environment is. As so many of the other comments made regarding the subject of this book, it is certainly not just, "nature vs. nurture". "Ecology" and, "holism" are words that important to the thread of this book, as the body interacts and is modified by the very nature that we as human beings have been modifying ever since we started to interact with our environment oh so many thousands of years ago. Brings to mind one of the more famous biblical phrases that, "the meek shall inherit the earth". Don't know about inheriting the earth but the things that we can not see can certainly have a profound effect on the physical body and our mental states. This book is worth reading more than just once. Enjoy it.

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