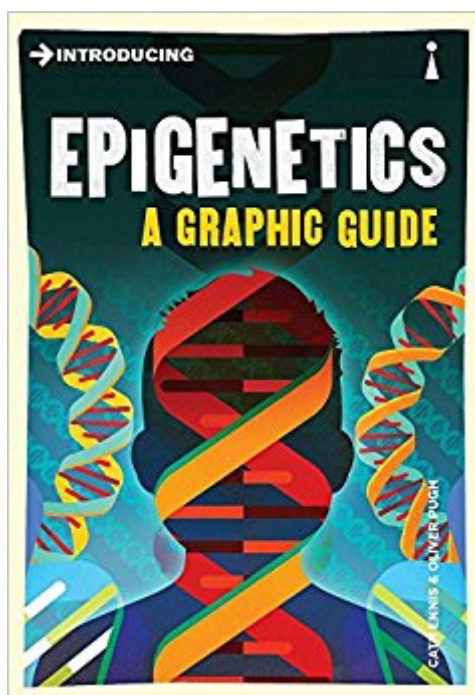


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# Introducing Epigenetics: A Graphic Guide



## Synopsis

Epigenetics is the most exciting field in biology today, developing our understanding of disease, hereditary traits, and evolution. In a striking comic-book style, *Introducing Epigenetics* pulls apart the double helix, illustrating the key concepts in cell biology and exploring the route from Pythagoras's theory of "spermism" through the Human Genome Project to the present day.

## Book Information

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## Customer Reviews

Cath Ennis has a research background in genetics, genomics and cancer, and works as a grant writer and project manager in Vancouver, Canada. She writes about epigenetics and other topics for *The Guardian*, has co-written a textbook on stem cell science, and can be found online at [enniscath.com](http://enniscath.com). Oliver Pugh is a designer and illustrator.

This is a fascinating but very complicated topic that has a great deal of importance in the future of life as we know it. This book went a long way toward helping clarify certain things and doing it with humor. It helped in my class papers.

As the book explains, while DNA is the code that defines an organism, epigenetics provides the notes on how to translate the code into a real live organism. The book is formatted for modern readers. It is short as Kindle books go  $\tilde{A}f\hat{A}\tilde{A}$   $\hat{-}\tilde{A}$   $\hat{\infty}$  only 1385 locations. It is divided into

chapters about one page each in length. I include the chapter index at the end of the review. It is rich in diagrams. In writing such a book, the author must strike a balance between readability and completeness. She has to make some assumptions about the reader. This book appears to assume that the reader will be college educated, not flummoxed by the introduction of new technical terms, and somewhat familiar with genetics. In other words, it is not for everybody. I am 50 years out of college but have read much of the popular literature on genetics, starting with Dawkins' *Selfish Gene*. I found that the book demanded my attention, forcing me to reread a few chapters in order to fully grasp the concepts, but in the end quite satisfying.

DNA, the blueprint for our bodies, is invariant. Every cell of the body contains the same long, complex DNA molecules. However, DNA always exists among other, supporting molecules, which do differ from cell to cell. These epigenetic assistants control how the information from the DNA is translated into building proteins for the various types of cells within the body. DNA stands for deoxyribonucleic acid – the double helix, half from the father, half from the mother. RNA stands for ribonucleic acid, the more general form. Proteins are formed by what is called messenger RNA. These molecules are copied from short subsets of the whole DNA molecule. Messenger RNA tells the cell how to build the proteins required to be, for instance, a brain cell or a liver cell. The structures surrounding DNA in a given cell includes markers that control which part of the DNA will be used as templates for building amino acids within the cell and which will be ignored. There are different structures for different cells. As the chapter titles below indicate, a lot of things affect the epigenetic material surrounding DNA. Among these are aging and exposure to chemicals such as those in tobacco. While the DNA may not change within an individual, the body parts made according to that DNA model do change via epigenetics. Epigenetic diagnoses for disease, and epigenetic-based cures for disease are already in place, and many more appear to be on the horizon. This book will be useful reading for investors interested in the next big things in biotechnology. It will help them read investment prospectuses and annual reports from companies involved in esoteric new technologies. The book is truly a five-star effort. The author deserves a great deal of credit for striking such a good balance among readability, completeness and bulk.

The chapter titles: Genes, RNA and Proteins  
Chromosomes, Nucleosomes and Chromatin  
DNA Replication and Mitosis  
Meiosis and Inheritance  
Beyond the DNA Sequence: Gene Regulation  
Nature and Nurture  
Twin Studies  
The History of Epigenetics  
The Modern Understanding of Epigenetic Modifications  
DNA Methylation  
Histone Modifications  
Chromatin Remodelling  
Nuclear Location  
RNA Interactions Between Different Epigenetic Modifications  
Epigenetics Explains What Genetics Alone Cannot  
Epigenetic Changes During Embryonic Development  
X Chromosome Inactivation  
How Our Environment Affects

Our Genes Not So Identical Twins Epigenetic Inheritance Epigenetic Inheritance in Animal Models Human Epigenetic Inheritance: The Dutch Hunger Winter Human Epigenetic Inheritance: A "verkalix" Mechanisms of Epigenetic Inheritance Epigenetics in Evolution Epigenetics in Disease: Ageing Epigenetics in Disease: Inherited Mutations in Epigenetic Regulators Epigenetics in Disease: Imprinting Errors The Epigenetics of Cancer Epigenetics in Medicine Stem Cell Therapies Epigenetics and Pseudoscience The Future of Epigenetics Epigenomics New Epigenetic Modifications The Epitranscriptome Epigenetic Editing Epigen-Ethics Looking Ahead Glossary Recommended Further Reading Author's Acknowledgements

Good brief demonstration for someone who has experience in DNA and genetics but not for everyone.

Good

Good book

Easy read intro. easy attainable info, however states that "mind" cannot influence the epigenome. I think it lacks info from behavioral medicine.

I bought this book for a friend who is interested in science and was asking me some questions about epigenetic. I looked through several books here at and decided to buy this particular book. I was interested in the graphical approach to introducing the subject as I have a couple of other books on DNA sequencing and protein synthesis that presented the material in a nice way with great graphics. Unfortunately I was unimpressed with the book and felt that the title was misleading. Although there were lots of pictures I didn't feel that they added much to the presentation of the material. Still I do think that it does provide an introduction to the subject for nonscientists.

Interesting information presented in an easy to understand format. Definitely part of the future of medicine.

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