

Microcosm: E. coli and the New Science of Life

By Carl Zimmer

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A Best Book of the Year*Seed Magazine* • *Granta Magazine* • *The Plain-Dealer*In this fascinating and utterly engaging book, Carl Zimmer traces *E. coli*'s pivotal role in the history of biology, from the discovery of DNA to the latest advances in biotechnology. He reveals the many surprising and alarming parallels between *E. coli*'s life and our own. And he describes how *E. coli* changes in real time, revealing billions of years of history encoded within its genome. *E. coli* is also the most engineered species on Earth, and as scientists retool this microbe to produce life-saving drugs and clean fuel, they are discovering just how far the definition of life can be stretched.

From the Trade Paperback edition.

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Microcosm: E. coli and the New Science of Life By Carl Zimmer Bibliography

- Sales Rank: #490924 in eBooks
- Published on: 2008-05-06
- Released on: 2008-05-11
- Format: Kindle eBook

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Editorial Review

From Publishers Weekly
When most readers hear the words *E. coli*, they think tainted hamburger or toxic spinach. Noted science writer Zimmer says there are in fact many different strains of *E. coli*, some coexisting quite happily with us in our digestive tracts. These rod-shaped bacteria were among the first organisms to have their genome mapped, and today they are the toolbox of the genetic engineering industry and even of high school scientists. Zimmer (*Evolution: The Triumph of an Idea*) explains that by scrutinizing the bacteria's genome, scientists have discovered that genes can jump from one species to another and how virus DNA has become tightly intertwined with the genes of living creatures all the way up the tree of life to humans. Studying starving *E. coli* has taught us about how our own cells age. Advocates of intelligent design often produce the *E. coli* flagellum as Exhibit A, but the author shows how new research has shed light on the possible evolutionary arc of the flagellum. Zimmer devotes a chapter to the ethical debates surrounding genetic engineering. Written in elegant, even poetic prose, Zimmer's well-crafted exploration should be required reading for all well-educated readers. *(May 6)*
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Review
“A powerful account of the dynamic, complicated and social world we share with this ordinary yet remarkable bug. . . . Exciting, original, and wholly persuasive.” —*New Scientist*

“Superb. . . . A quietly revolutionary book.” —*Boston Globe*

“Creepy, mind-twisting, and delightful all at the same time” —Steven Johnson, author of *The Invention of Air*

“This award-winning science writer has turned out an illuminating biography of one of biology’s most influential–and underappreciated–players.” —*Discover*

“For readers who enjoy a seat at the revolution and a chance to ponder the ‘supple little bugs’ at the dawn of life, *Microcosm* is a bracing read. This timely book deserves shelf space near Lewis Thomas’ classic *Lives of a Cell*.” —*Cleveland Plain-Dealer*

“Engrossing. . . . Zimmer adroitly links the common heritage we share with E. coli and the emerging horizons of science.” —*The New York Times Book Review*

“All in all, *Microcosm* is a phantasmagoric read that explains how our understanding of the nature of E. coli has helped to unravel the mysteries of our own nature and evolution. The book is impressive for the information it imparts and even more impressive for the ideas it provokes.” —*New England Journal of Medicine*

“E. coli has provided answers that have reshaped our very definitions of life. Zimmer succeeds in engendering a healthy respect for the bug that lives inside us all.” —*Seed Magazine*

“Engagingly written. . . . [Zimmer’s] prose is vivid without being misleading–surely one of the hallmarks of good science writing. . . . We should be sure to heed the lessons of E. coli. Those little stinkers have been around a lot longer than...

From the Inside Flap
In 1946, a 20 year old medical school student called Joshua Lederberg decided to find out whether microbes make love. Lederbeter was motivated not by a displaced libido, but by scientific ambition. At the age of seven, he had declared that he hoped to become 'like Einstein' and to 'discover a few things in science.'

The 'few things' Lederberg discovered would revolutionise modern science and earn him a Nobel Prize. He chose to observe the breeding habits of a certain bacterium called Escherichia coli, better known as E coli. His experiments used defective E coli strains lacking the essential molecules to reproduce by cloning which should, by rights, perish in the petri dish. But slowly, a few colonies of survivors began to spread accross the dishes. The only possible explanation for their survival was that they were a product of sex. Not only had Lederberg proved that bacteria have sex, he had also proved they have genes.

Since then, what was once nothing more than a humble resident of the human gut has become our best guide to what it means to be alive. Most of us might only know E coli for its lethal strain that causes food poisoning. Zimmer uses E coli as a prism to understand what life is, what it was, and what it will become. Among other things, Zimmer tells us how E coli microbes talk to each other, how studies of their evolution represent the most powerful evidence in support of natural selection, and how they might just explain life on other planets...

Users Review

From reader reviews:

Donna Gray:

The reason? Because this Microcosm: E. coli and the New Science of Life is an unordinary book that the inside of the reserve waiting for you to snap this but latter it will surprise you with the secret it inside. Reading this book adjacent to it was fantastic author who write the book in such remarkable way makes the content interior easier to understand, entertaining technique but still convey the meaning completely. So , it is good for you for not hesitating having this any longer or you going to regret it. This book will give you a lot of rewards than the other book include such as help improving your expertise and your critical thinking technique. So , still want to delay having that book? If I were being you I will go to the reserve store hurriedly.

Danny Miller:

Reading a book to be new life style in this year; every people loves to go through a book. When you go through a book you can get a large amount of benefit. When you read textbooks, you can improve your knowledge, due to the fact book has a lot of information onto it. The information that you will get depend on what types of book that you have read. If you want to get information about your research, you can read education books, but if you act like you want to entertain yourself read a fiction books, this sort of us novel, comics, in addition to soon. The Microcosm: E. coli and the New Science of Life will give you new experience in examining a book.

Delores Villarreal:

In this period globalization it is important to someone to get information. The information will make a

professional understand the condition of the world. The condition of the world makes the information much easier to share. You can find a lot of references to get information example: internet, classifieds, book, and soon. You can see that now, a lot of publisher which print many kinds of book. The actual book that recommended for your requirements is Microcosm: E. coli and the New Science of Life this publication consist a lot of the information of the condition of this world now. This specific book was represented how do the world has grown up. The vocabulary styles that writer require to explain it is easy to understand. Typically the writer made some exploration when he makes this book. Honestly, that is why this book acceptable all of you.

Donald Foster:

Many people spending their time by playing outside along with friends, fun activity along with family or just watching TV the entire day. You can have new activity to shell out your whole day by reading through a book. Ugh, ya think reading a book will surely hard because you have to take the book everywhere? It all right you can have the e-book, taking everywhere you want in your Touch screen phone. Like Microcosm: E. coli and the New Science of Life which is finding the e-book version. So , try out this book? Let's find.

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