



Microcosm: E. coli and the New Science of Life

By Carl Zimmer

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

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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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. Lederberg 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 across 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:

Wendy Brame:

A lot of people always spent all their free time to vacation or maybe go to the outside with them family members or their friend. Did you know? Many a lot of people spent that they free time just watching TV, or maybe playing video games all day long. If you want to try to find a new activity this is look different you can read a new book. It is really fun for you personally. If you enjoy the book that you simply read you can spent all day long to reading a reserve. The book Microcosm: E. coli and the New Science of Life it is quite good to read. There are a lot of people that recommended this book. These folks were enjoying reading this book. Should you did not have enough space to develop this book you can buy often the e-book. You can more easily to read this book from a smart phone. The price is not to fund but this book has high quality.

Sonya Wright:

Exactly why? Because this Microcosm: E. coli and the New Science of Life is an unordinary book that the inside of the guide waiting for you to snap that but latter it will zap you with the secret that inside. Reading this book close to it was fantastic author who have write the book in such incredible way makes the content interior easier to understand, entertaining method but still convey the meaning entirely. So , it is good for you for not hesitating having this nowadays or you going to regret it. This book will give you a lot of advantages than the other book possess such as help improving your talent and your critical thinking approach. So , still want to delay having that book? If I were you I will go to the reserve store hurriedly.

Oliver Watts:

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What is your hobby? Have you heard in which question when you got pupils? We believe that that question was given by teacher to their students. Many kinds of hobby, Every person has different hobby. And also you know that little person just like reading or as reading become their hobby. You must know that reading is very important in addition to book as to be the point. Book is important thing to provide you knowledge, except your current teacher or lecturer. You find good news or update regarding something by book. Different categories of books that can you decide to try be your object. One of them is actually Microcosm: E. coli and the New Science of Life.

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