



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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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:

Richard Twombly:

Here thing why this particular Microcosm: *E. coli* and the New Science of Life are different and dependable to be yours. First of all looking at a book is good however it depends in the content of it which is the content is as delightful as food or not. Microcosm: *E. coli* and the New Science of Life giving you information deeper and different ways, you can find any publication out there but there is no reserve that similar with Microcosm: *E. coli* and the New Science of Life. It gives you thrill examining journey, its open up your own eyes about the thing this happened in the world which is perhaps can be happened around you. You can bring everywhere like in park, café, or even in your method home by train. For anyone who is having difficulties in bringing the printed book maybe the form of Microcosm: *E. coli* and the New Science of Life in e-book can be your choice.

Evelyn Spencer:

Hey guys, do you wants to finds a new book to read? May be the book with the name Microcosm: *E. coli* and the New Science of Life suitable to you? Often the book was written by renowned writer in this era. The particular book untitled Microcosm: *E. coli* and the New Science of Life is the main of several books that everyone read now. That book was inspired many people in the world. When you read this guide you will enter the new dimension that you ever know just before. The author explained their idea in the simple way, so all of people can easily to understand the core of this reserve. This book will give you a large amount of information about this world now. In order to see the represented of the world in this particular book.

Stephanie Dillard:

Playing with family in the park, coming to see the coastal world or hanging out with buddies is thing that usually you will have done when you have spare time, after that why you don't try matter that really opposite from that. One particular activity that make you not sense tired but still relaxing, trilling like on roller coaster you already been ride on and with addition details. Even you love Microcosm: E. coli and the New Science of Life, you are able to enjoy both. It is excellent combination right, you still wish to miss it? What kind of hangout type is it? Oh can occur its mind hangout people. What? Still don't get it, oh come on its known as reading friends.

Gary Collis:

Your reading sixth sense will not betray anyone, why because this Microcosm: E. coli and the New Science of Life e-book written by well-known writer who really knows well how to make book which can be understand by anyone who have read the book. Written inside good manner for you, dripping every ideas and composing skill only for eliminate your hunger then you still question Microcosm: E. coli and the New Science of Life as good book but not only by the cover but also by content. This is one guide that can break don't determine book by its cover, so do you still needing an additional sixth sense to pick that!? Oh come on your reading sixth sense already told you so why you have to listening to a different sixth sense.

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