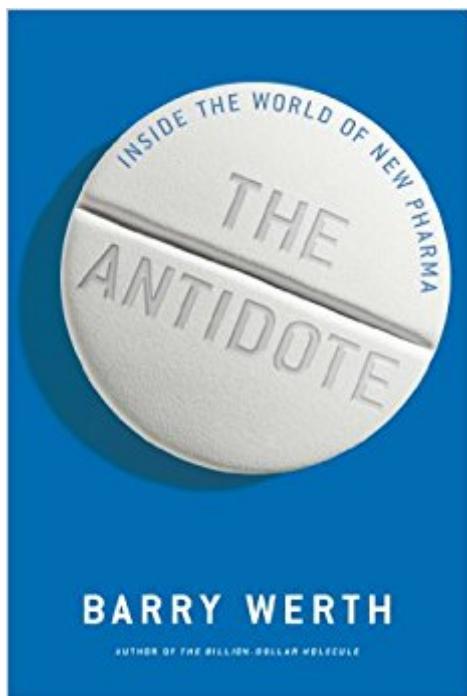


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# The Antidote: Inside The World Of New Pharma



## Synopsis

This is the Moneyball of the pharma world, the story of one drug company's quest to transform the pharmaceutical industry and a deeply revealing look into a world where breakneck capitalism meets life-saving medicine. In 2011, Barry Werth draws upon unprecedented inside reporting spanning more than two decades to provide a groundbreaking closeup of the upstart pharmaceutical company Vertex and the ferocious but indispensable world of Big Pharma that it inhabits. In 1989, the charismatic Joshua Boger left Merck, then America's most admired business, to found a drug company that would challenge industry giants and transform health care. Werth described the company's tumultuous early days during the AIDS crisis in 1990, a celebrated classic of science and business journalism. Now he returns to tell a riveting story of Vertex's bold endurance and eventual success. The \$325 billion-a-year pharmaceutical business is America's toughest and one of its most profitable. It's riskier and more rigorous at just about every stage than any other business, from the towering biological uncertainties inherent in its mission to treat disease; to the 30-to-1 failure rate in bringing out a successful medicine even after a molecule clears all the hurdles to get to human testing; to the multibillion-dollar cost of ramping up a successful product; to operating in the world's most regulated industry, matched only by nuclear power. Werth captures the full scope of Vertex's twenty-five-year drive to deliver breakthrough medicines. At a time when America struggles to maintain its innovative edge, this is a powerful inside look at one of the most intriguing and important business stories of recent decades.

## Book Information

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## Customer Reviews

Werth, author and journalist, offers this sequel to *The Billion-Dollar Molecule* (1994), on the founding of the pharmaceutical company Vertex. Joshua Boger, founding scientist and president, along with a group of young scientists, set out in a garage to overtake the big drug companies. The author returns to Vertex to learn what it takes to succeed in science and business and sees that 22 years later and at about four times the anticipated cost, Vertex is now set to achieve Boger's initial goals: "Make better drugs, faster. Create the 21st century biopharmaceutical company. Become Merck, only better." Werth seeks to discover what Boger's vision has become and considers if it is a road map toward "a new biological epoch." We learn that "all progress in the pharmaceutical business is backbreaking, freighted with unknowns, and takes twice as long as you think it will." Now Vertex has nearly 2,000 employees, and it is about to debut the company's first drugs discovered and developed internally and commercialized under its own label. --Mary Whaley

"A riveting mix of molecular science, big personalities and big money."

(Nature) "Barry Werth's new book does for the world of biotech drug development what *The Soul of a New Machine* did for the dawn of the computer age. It presents an exciting narrative about the business of bringing new products to market." (Boston Globe) "You can read *The Antidote* as a book about predicaments encountered by just about any company whose future depends on constant innovation. Yet, given Mr. Werth's welcome attention to personalities and circumstances as well as to the recalcitrance of particular molecules and particular suffering bodies, you can also take the book at face value, as a story about what happened in one company in one fairly short period of time. ... The vividness and rich detail of "The Antidote" make it a gripping coming-of-age story for modern corporate and scientific times." (The Wall Street Journal) "Werth's excellent writing takes the reader deep into the heart of Vertex and into the dilemma facing the biotech pioneers, and us all." (Fortune) "Werth keeps a brisk pace, describing Vertex as the antidote to older pharma and Merck in particular. He infuses the book with drama, even managing to make a regulatory meeting seem exciting." (The Economist) "The book is an in-depth look at a company in a daunting, high-stakes, highly regulated business in which science, commerce and politics intersect." (Pittsburgh Tribune) "Werth very aptly captured the drama of the

pharmaceutical industry. Werth was able to obtain extraordinary inside information on the workings of the pharmaceutical industry. He was able to capture the emotional and psychological state of the players, the day-to-day workings of the companies with failures and successes of research, as well as collaborations with other companies and acquisitions. Succinct and understandable. (New York Journal of Books) "Werth...[s] rendering of bright, quirky individuals and their determination to make Vertex sustainable will satisfy anyone seeking an exciting biotech business story. A revealing, readable book. (Kirkus Reviews) Werth doesn't shy away from technical details, and The Antidote has plenty of "inside baseball" for pharma industry cognoscenti ... But although these nitty-gritty details are important and interesting, Werth uses them as the backdrop to ask a more broadly relevant and philosophical question: not just how to build a large drug company, but what to grow up to become?]. Sometime, somewhere, a future biopharma CEO will hopefully read The Antidote and be inspired to continue the quest. (Pharmagellan.com)

As a biomedical scientist I really enjoyed this book. It is the sequel to the author's previous volume "The Billion Dollar Molecule". Both books provide a fly-on-the-wall account of Vertex Pharmaceuticals, an innovative biopharmaceutical company that brought two breakthrough medicines - one for hepatitis C and the other for cystic fibrosis - to market two years ago. Both these drugs were the first of their kind and have given thousands of patients a new lease on life. From a broader perspective however, the author's goal is to shed light both on the immensely challenging process of bringing a new drug to market and the brilliant scientists and driven personalities that make it possible. Werth's account of Vertex focuses mainly on the hepatitis C drug, with the cystic fibrosis drug playing a smaller but still important role. The previous book was much more science-heavy than this one, emphasizing the chemistry, biology and computer science that goes into the early stages of drug discovery. In spite of the intense scientific competition and research depicted in that volume (much of it spanning the late 80s and early 90s), Vertex did not bring a successful drug to market until 2010, underscoring the challenge of drug discovery in which you have to furiously paddle simply to stay afloat. The two books thus mirror two different phases of the company: the first dealing mainly with the science and the birthing pains of a new startup, and the second dealing with the transformation of the startup into a commercial enterprise. You will thus find much more of the business, legal and commercial aspects of drug development in this volume. Boardroom deliberations and the subtleties of drug pricing litter the narrative. Both books, however, provide an excellent overview of the multiple challenging stages of drug discovery, from discovering

an initial "hit", to optimizing its properties to formulating it and finally selling it in the form a once-a-day pill. The account of formulation difficulties was especially revealing to me. As the founder of Vertex put it, taking a drug all the way from initial discovery to the market is harder than putting a man on the moon, partly because the biology is so complex and incompletely understood. Werth has always been a skilled purveyor of the personalities and egos that populate the highest echelons of the science and business and he continues this tradition in this book. Along with highly driven scientists we meet egotistic but talented lawyers, executives, government officials, Wall Street analysts and venture capitalists. The founder of Vertex is described as having a "reality distortion field" akin to Steve Jobs. The character descriptions are far more colorful in the previous book but this volume does have its share of sharp profiles: for instance one management consultant "dressed like George Will but sounded like Don Draper channeling Alan Ginsburg". One of the strengths of the previous volume was that many of the personalities portrayed in it - including academic giants like Robert Burns Woodward and industrial giants like George Merck - were fundamentally more interesting but the present account on the other hand does a better job of describing the vast and sundry set of individuals required to sustain the diverse drug enterprise. We also see how cruel the business can be, bringing failure to years of intense effort and laying off dedicated scientists who have given their heart and soul to the process. Werth's discussion of the two Vertex drugs also raises important questions about the future of the industry. The hepatitis drug is targeted toward a vast patient population, much of which is located in poor countries. The cystic fibrosis drug is targeted toward a small patient population, much of which is located in rich countries. The stories of patients in both groups - one of which Werth documents in detail - are heartbreaking, but in both cases the challenge is to balance profits with cures. In one case the company was compelled to charge exorbitant amounts of money because of the small patient population while in the other case the lack of wealthy patients led to lower revenues. Whether you are developing a drug for millions or for thousands, the R&D costs are roughly the same - and enormous. This is the moral and financial challenge the industry faces right now; how, when it is trying to develop highly personalized therapies for smaller and smaller patient groups, can it get away with both charging reasonable prices and recovering the expenditure on R&D that it can plug into developing the next drug. Werth deftly discusses these issues along with the underlying ones of FDA approvals and Medicare and government controls. Ironically, the successful Vertex story - which culminated last year in a move to a shining, sprawling new building near Boston Harbor - ends in a somewhat somber note. Many of the most important scientists - including the founder - who discovered the two medicines are no longer with the company and the highly-science driven approach that was

described in the first book seems to have taken a backseat to commercial pursuits. The future of the company is thus not completely certain, and Werth ends with an afterword in which he discusses the fate of big pharmaceutical companies which seem to be laying off thousands, making incremental advances and cutting each others' throats to bring the next "me-too" pill to market. Unlike Vertex, many of these organizations spend much more on marketing than on R&D and are busy pleasing Wall Street and shareholders rather than patients. As Werth reminds us, if we want to advance the next groundbreaking medicines we need to remember George Merck's advice: focus on patients, the profits will follow. The story of Vertex provides both a shining example and a cautionary note.

Extremely interesting followup to his previous book (The Billion-Dollar Molecule: The Quest for the Perfect Drug) on the biotech company Vertex. Many of the characters from the prior book have either moved on to other ventures or moved up the corporate ladder. Werth traces the evolution of Vertex from a feisty startup focused on perfecting an immunological anti rejection compound for transplants to the more mature company with a different focus and portfolio that it has become over three decades. It also serves as a cautionary tale for the drive to keep a company afloat with investors and in placing too much emphasis (HepC) on a single disease and compound for a company's success. Vertex dominated the HepC market, but only for a brief instant in time. Eric Olson (who has left Vertex) spearheaded the cystic fibrosis program which is now the leading product and dominant revenue stream for the company. Read both books to see how the company started out to design drugs de novo from protein structural information, and by a very convoluted path ended up where it is today.

This book is amazing because I never thought a corporation can have so many souls dancing inside, let alone a Pharma company. I want to say that I exaggerated only a little to compare this book's story to the 10 year Trojan War. What really touched me are the stories of individuals. The Bogers who "bore the torch" in the early days of doing great science and exploring the frontiers, the successors who financed and commercialized the founders' vision, the Wall Street analysts wanting to milk the new Pharmas like they did with the old, the patient advocates who wanted Vertex to remain true to its mission even when it is burning through hundreds of thousands of dollars a day... Those are real people competing viciously with selfish aims and playing out in a ruthless business world where billions of dollars would be won or lost on any single day. The deciding factors at the end of the day are two things: luck and balls. Who doesn't become exited when warm humanitarian

ideas and cold hard cash were tossed together and shaken violently by a group of crazy scientists? I will have that straight up any day.

My son participates in Phase 1 and Phase 3 drug trials at the Univ of Texas. That is complex stuff. The scientific development of the drugs being tested is much more difficult. This book gives you some idea of what is involved. I wish that there were more books like this on other drug companies. This book was particularly good on giving you some idea of the gyrations of the stock price of these companies and what is behind the gyrations. Vertex brought a drug to the market to cure hepatitis C. Possibly one might come up with some discounted cash-flow analysis which would give a value for the company.....but after Vertex got its drug to market someone came along with another better drug. How do you model that?I admire Vertex's quest for innovation. But 20 years of research before it can bring a drug to market is almost unbelievable. How they managed to finance this is amazing.The key to all economic growth is innovation. One of the vital issues is how to finance this innovation which requires so much research. There aren't any easy answer. The US seems to be doing better than most other countries.

I work in Pharma and the book goes a long way to depict the inner workings and dynamics of the industry with real-life happenings.

An incredibly detailed look inside the world of Pharma. One gets to see the sausages getting made, and how many compromises are needed and how much perseverance and straight up good luck is needed to get a drug to market. Drug discovery and Development is hard, expensive and non-linear. But ultimately the payoff can be fantastic. This book takes you on that journey.

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