

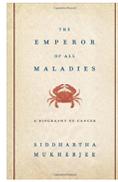
THE BIG IDEAS

The Stats

We're losing the war on cancer.

How to Conquer Cancer

The Emperor is dead. Long live the Conquerors.



The Emperor of All Maladies

A Biography of Cancer

BY SIDDHARTHA MUKHERJEE · SCRIBNER © 2010 · 592 PAGES

“This book is a history of cancer. It is a chronicle of an ancient disease—once a clandestine, ‘whispered-about’ illness—that has metamorphosed into a lethal shape-shifting entity imbued with such penetrating metaphorical, medical, scientific, and political potency that cancer is often described as the defining plague of our generation. This book is a ‘biography’ in the truest sense of the word—an attempt to enter the mind of this immortal illness, to understand its personality, to demystify its behavior. But my ultimate aim is to raise a question beyond biography: Is cancer’s end conceivable in the future? Is it possible to eradicate this disease from our bodies and societies forever? ...

In a sense, this is a military history—one in which the adversary is formless, timeless, and pervasive. Here, too, there are victories and losses, campaigns upon campaigns, heros and hubris, survival and resilience—and inevitably, the wounded, the condemned, the forgotten, the dead. In the end, cancer truly emerges, as a nineteenth century surgeon once wrote in a book’s frontispiece, as ‘the emperor of all maladies, the king of terrors.’”

~ Siddhartha Mukherjee from *The Emperor of All Maladies*

This is the 10th book on cancer we’ve featured so far since my brother’s cancer diagnosis. (And, this will be the longest introduction I’ve done and this Note will be a little different than most.)

Here’s the list in order for those who might be starting with this Note and would like to follow the progression of my thinking: We started with [Anticancer](#) by [David Servan-Schreiber](#). I read that immediately and used it as the basis of the “[80/20 180](#)” protocol for my brother. The wisdom from that book and dozens of other references from prior Notes over the years formed the basis for [Conquering Cancer 101](#)—a class I filmed within weeks of my brother’s diagnosis (that over 1 million people viewed on Facebook in the first month).

From there we looked at [Tripping over the Truth](#) by science writer [Travis Christofferson](#) in which we first learned about the compelling metabolic theory of cancer (vs. the prevailing somatic mutation theory of cancer). Then we covered [Nasha Winters’s The Metabolic Approach to Cancer](#). Nasha is a stage IV ovarian cancer thriver who was told she had 3 to 6 months to live 27 (!) years ago. She’s now a naturopathic oncologist and is my brother’s consulting oncologist.

Then we featured a journal article called [Cancer as a Metabolic Disease](#) by leading scientist [Thomas Seyfried](#) in which we learned more about the underlying science behind the metabolic approach. From there, we explored [Keto for Cancer](#) by [Miriam Kalamian](#) who is my brother’s day-to-day nutritionist. (I integrated that wisdom into [Conquering Cancer 102](#).)

Then we featured [Outside the Box Cancer Therapies](#) by a couple of brilliant naturopathic doctors who provided insights on an “integrated oncology” approach before looking at [Radical Remission](#) by [Kelly Turner](#). Kelly got her Ph.D. studying over 1,000 (!) people who thrived way beyond their traditional oncologists’ expectations.

Then we revisited Thomas Seyfried's work—this time going deep into his 400+ page textbook-like treatise of a book by the same name as his journal article: [Cancer as a Metabolic Disease](#). From there, we looked at [The Truth in Small Doses](#) by [Clifton Leaf](#) who provides a brilliant analysis of the numbers proving the fact that we're unequivocally *losing* the war on cancer.

And, here we are.

I read this book last because, frankly, I wasn't interested in starting with a book that featured, as per the inside flap, "cancer as the protagonist." I wanted my BROTHER to star as the *conqueror* of cancer, not the other way around.

As such, my question wasn't "*Is it possible to eradicate this disease from our bodies?*" but "*HOW can we conquer cancer in my brother's body and your body and your loved one's body?*"

Having said all that, I'm pretty sure that (as per the 1,700+ Amazon reviews) this book is, by far, the bestselling book on cancer. It is beautifully written and won a Pulitzer Prize. (Get a copy [here](#).)

And, Siddhartha Mukherjee is, unquestionably, brilliant. He has to have the best academic pedigree possible: He's a former Rhodes Scholar and graduate of Oxford, Stanford, and Harvard. (Hah. Nice work, sir!)

As per his bio, these days he's "*an assistant professor of medicine at Columbia University and a staff cancer physician at the CU/NYU Presbyterian Hospital. His laboratory focuses on discovering new cancer drugs using innovative biological methods.*" Plus: "*Mukherjee trained in cancer medicine at the Dana Farber Cancer Institute of Harvard Medical School and was on the staff at the Massachusetts General Hospital.*"

So, yah. He's essentially a cancer physician, researcher and award-winning science writer SUPERHERO.

And...

As you know, I've been obsessed with understanding cancer from a metabolic perspective. And, we've been following our metabolic protocol since Day 1 (after the post-surgical pure glucose IV drip)—seeing such great preliminary results with my brother and his stage IIb pancreatic cancer.

I'm repeating myself, but for the sake of context, I'll recap here: After initially telling my brother he needed to get a Whipple procedure and chemo plus potential radiation (but not mentioning the fact that my brother's odds of living 5 years were, statistically speaking (via standard of care treatment), around 3% and that his odds of living 10 years were 1 in 100), at the second appointment (following his PET scan 45 days after surgery), my brother's oncologist (the guy who used to have a candy bowl in his reception area) told us: "*If I didn't know you had cancer, I wouldn't know you had cancer. If I had what you have, I'd be doing what you're doing.*"

All of that to say that the first thing I did when I picked up this book was flip to the Index (which, by my rough count, has ~1,000 references) to see what Dr. Mukherjee had to say about Otto Warburg and his thoughts on the metabolic origin of cancer.

So, I cracked open the book and turned to page 570. It's the second-to-last page of the book. I thumbed down the "W" list. There's a "*Wall Street Journal*" reference. Then "Walters, Barbara" then a "Wang, Zhen Yi" reference then "war gasses" then "War on Cancer" then...

Wait. I thought to myself: "Warburg is spelled "W-a-r-burg, right?" Did I miss it? I scanned again. Hmmm. Not there. I looked again, certain I must have been missing something.

I mean, the Nobel Prize winner who described the fact that cancer cells metabolize energy differently than normal, healthy cells HAS to be at least *mentioned* in a 500+ page book on the biography of cancer.

Right?

W R O N G.

Gulp. How is that possible?

Well, again, my friends, when cancer is viewed as a genetic disease (like Dr. Mukherjee and all of his esteemed, earnest, BRILLIANT (!) colleagues see it), then there's simply no need to talk about something as inessential as how Otto Warburg thought about cancer cell metabolism. (Which, btw, is why you also won't find any indexed references to "cytoplasm" or "mitochondria" or "nutrition" either.)

(And, at the risk of sounding petty but with the intention of shining a VERY bright light on a broken system as we strive to conquer cancer: When you ignore Warburg's ideas, you can also be an oncologist with a bowl of candy in your reception area who encourages your patients to have soda during their chemotherapy while condoning (not even thinking about?) the distribution of pink sugary cookies in the same chemo room during Cancer Awareness Month.)

<— Think about that for 5 seconds. [Then read this blog post](#) by a woman going through cancer treatment. Then realize that the *vast* majority (90%+?) of oncologists haven't received Warburg's memo.

YET... And now I'm shouting... EVEN MY UPS DRIVER WES knows that "cancer loves sugar!"

And...

My friends, THIS (from my perspective) is P R E C I S E L Y why we're losing the war on cancer.

THIS (from my humble yet fierce perspective) is P R E C I S E L Y why Clifton Leaf says *this* in [The Truth in Small Doses](#): "*Despite the seemingly endless procession of discoveries in the lab, despite the spate of recorded 'wonder drugs,' the deadliest malignancies are still nearly as deadly in 2013 as they were at the start of the cancer war. Fewer than a fifth of Americans diagnosed today with a cancer of the lung, pancreas, liver, or esophagus are expected to live five years. Likewise, cancers of the stomach, brain and ovary largely remain the killers they were at the start of the cancer war.*"

That's after \$300 billion (!) dollars invested in research since President Nixon declared War on Cancer two days before Christmas in 1971. That's after we account for the \$100 billion we spend every year on cancer medications.

Back to Clifton Leaf: "*Without question, some of those discoveries have saved lives. However, America's four-decade investment in cancer research—a total of more than \$300 billion (inflation-adjusted) in taxpayer spending, private R&D, and donations—has not stopped, or even substantially slowed, the soaring cancer burden.*"

So, with that, and with an infinite amount of respect for Dr. Mukherjee and his esteemed, earnest and BRILLIANT (!) colleagues, let's take a quick look at this book—from (very importantly!) the vantage point of US as the CONQUERORS not cancer.

And, I say we write a new book with YOU and your brother, sister, mother, father, son, daughter, aunt, uncle, grandfather, grandmother, best friend, husband, wife, work colleague, poker buddy, plumber, carpool partner, friend's cousin, etc. etc. etc. x 10 million+ people like me and you who are diagnosed every (!) single (!) year (!) as THE PROTAGONIST of the cancer drama.

Perhaps we can call our new book: "*The Emperor Is Dead — Long Live the Conquerors!*"

P.S. This book was written in 2010. Seven years later, Dr. Mukherjee wrote an article for *The New Yorker* in which he takes a baby step toward a more comprehensive view of cancer called "[Cancer's Invasion Equation](#)."

THE STATS

“In 2010, about six hundred thousand Americans, and more than 7 million humans around the world, will die of cancer. In the United States, one in three women and one in two men will develop cancer during their lifetime. A quarter of all American deaths, and about 15 percent of all deaths worldwide, will be attributed to cancer. In some nations, cancer will surpass heart disease to become the most common cause of death.”

Those are the first words of the book—a prelude quote that sets the tone for the tome.

I won't belabor the point but, as per a 5-second contemplation of those numbers and as per the thorough, analytical review in [Clifton Leaf's *The Truth in Small Doses*](#), we're unequivocally losing the war on cancer. Of course, for our purposes, the question is How do we win that war?

HOW TO CONQUER CANCER

“Roiling underneath these medical, cultural, and metaphorical interceptions of cancer over the centuries was the biological understanding of the illness—an understanding that had morphed, often radically, from decade to decade. Cancer, we now know, is a disease caused by the uncontrolled growth of a single cell. This growth is unleashed by mutations—changes in DNA that specifically affect genes that incite unlimited cell division and cell death. In a cancer cell, these circuits have been broken, unleashing a cell that cannot stop growing.

That this seemingly simple mechanism—cell growth without barriers—can lie at the heart of the grotesque and multifaceted illness is a testament to the unfathomable power of cell growth. Cell division allows us as organisms to grow, to adapt, to recover, to repair—to live. And distorted and unleashed, it allows cancer cells to grow, to flourish, to adapt, to recover, and to repair—to live at the cost of our living. Cancer cells grow faster, adapt better. They are more perfect versions of ourselves.”

That's from the Prologue.

That's also a pretty good overview of the dominant (essentially unquestioned!), gene theory of cancer we've been discussing and juxtaposing with the much more compelling alternative (although, unfortunately, completely ignored) mitochondrial metabolic theory.

To capture that perspective more succinctly, here it is from a chapter-leading quote from leading cancer researcher, Bert Vogelstein: “*The revolution in cancer research can be summed up in a single sentence: cancer is, in essence, a genetic disease.*”

We'll talk about that more in a moment. First, a little story.

As [Clifton Leaf](#) tells us in [The Truth in Small Doses](#): Once upon a time (not that long ago), textbooks were written in which we were told that the human cell has twenty-four pairs of chromosomes. Everyone *knew* this to be true. It was a scientific *fact*.

Until it wasn't. Now, we know that the human cell has twenty-THREE pairs of chromosomes. Not twenty-four. We also know that the world is round, not flat. And that the earth is not, in fact, the center of the universe. “Hi, sun!”

Alas, the day cannot come too soon when we move away from the ideas in those two paragraphs and this line: “*The revolution in cancer research can be summed up in a single sentence: cancer is, in essence, a genetic disease.*”

I would offer a single counter sentence: “*Our failure to conquer cancer is, in essence, due to the fact that we think cancer is, in essence, a genetic disease.*”

If you've been following along since the first Note on cancer, I hope you can tell us the difference between the somatic mutation (or gene) theory and the metabolic theory of cancer.

To recap: The gene theory (to which Dr. Mukherjee subscribes), tells us that cancer is “*caused by the uncontrolled growth of a single cell. This growth is unleashed by mutations—changes in DNA that specifically affect genes that incite unlimited cell division and cell death.*”

In short: Cancer is CAUSED by genetic mutations. That’s the gene theory of cancer in a nutshell. That would be awesome if it was true.

Alas, there’s another explanation to the origins of cancer.

It’s called the metabolic theory of cancer. It states that, in short, it’s METABOLIC dysfunction that is the primary cause of cancer and that this *mitochondrial metabolic dysfunction* PRECEDES the genetic mutations—which are not the *cause* of cancer but the secondary, downstream EFFECTS of the metabolic breakdown.

That’s (obviously) a REALLY important distinction. Yet, again, it’s not even mentioned in the book. And, again, I think that’s the primary reason why we’re losing the War on Cancer.

Which leads me to this line (which, although poetically beautiful and, of course, in line with cancer playing the role of admired protagonist/Emperor, makes me wince for multiple reasons): “*Cancer cells grow faster, adapt better. They are more perfect versions of ourselves.*”

Yes. Of course, cancer cells grow faster and seemingly don’t know how to die. And, yes, they *appear* to adapt better. But not in ALL situations. This is the whole point of the metabolic approach to cancer. When you rehabilitate your mitochondria and treat your TERRAIN and not just the tumor, you can conquer cancer. Especially when you take advantage of cancer cells’ Achilles heel: Their metabolic INFLEXIBILITY.

As we’ve discussed (see [Keto for Cancer, Conquering Cancer 102](#) and the +1: [Cancer’s Achilles: How to Exploit It](#)), the energy metabolism of cancer cells is SO broken, they can, essentially, *only* fuel their growth via fermentation of glucose (and to a lesser yet important extent glutamine).

When you cut off their preferred fuel, you can weaken the seemingly unbeatable “Emperor” and see that cancer cells are NOT “more perfect versions of ourselves” but simply out of control, damaged cells that can be conquered when approached from the right perspective.

It’s David killing Goliath.

The seemingly unbeatable monster collapses from a very simple weapon.

The Emperor Is Dead — Long Live the Conquerors!

(Seyfried and some compelling studies come to mind: “*There are simply too many inconsistencies with the hypothesis that most cancers arise specifically from gene or chromosomal defects. The most damning evidence against the gene theory comes from the nucleus/cytoplasmic transfer experiments. ... Just because the majority of cancer researchers do not question the theory that guides their work does not mean that the theory is correct.*” <— Check out the studies in this 2015 journal article [Cancer as a mitochondrial metabolic disease](#).)

All of that leads us to the paragraph that follows the two above: “*The secret to battling cancer, then, is to find means to prevent these mutations from occurring in susceptible cells, or to find means to eliminate the mutated cells without compromising normal growth. The conciseness of that statement belies the enormity of the task. Malignant growth and normal growth are so genetically intertwined that unbraiding the two might be one of the most significant challenges faced by our species.*”

YES!!! We must find a means to “prevent these mutations from occurring” and then, when/if they do occur, “find means to eliminate the mutated cells without compromising normal growth.”

YES! YES! YES! x 10 million+ new cancer diagnoses every year.

See above discussion. Enter: The Metabolic Approach to Cancer.

And... “Malignant growth and normal growth are so **GENETICALLY** intertwined that unbraiding the two might be one of the most significant challenges faced by our species.” [emphasis mine]

Again. If you rewrite that sentence such that we see the METABOLIC connection between malignant growth and abnormal growth, we cut the seemingly impossible Gordian knot.

The Emperor Is Dead — Long Live the Conquerors!

Professor Seyfried comes to mind again: “It is my opinion that many cancer researchers, through their propensity to focus on gene mutations and mechanisms of action, have made the quest for cancer management far more complicated than it actually is.”

And, with that... We just concluded our Notes on this book by focusing on the first seven pages. (Hah.) (Seriously.) Check out the book for more on this beautifully-written biography of cancer.

For now: I’m focused on the fact that over 10 million people around the world will be diagnosed with cancer this year. Tens of millions of families’ lives will continue to be torn apart.

It’s time to KNOW that we can conquer cancer. It’s time to bring a grounded, fierce, urgent resolve to do so.

If you feel so inspired, we’d be honored to have you join us in our [How to Conquer Cancer](#) initiative where we’ll be doing everything in our power to help lead the cause and conquer cancer (one person at a time, starting with you and your loved ones) via a scientifically rigorous, data-driven, elegantly simple metabolic protocol: howtoconquercancer.com.

Perhaps this can be one of our rallying cries: *The Emperor Is Dead — Long Live the Conquerors!*

With love and more love and even more determination,

B

Brian Johnson

If you liked this Note, you’ll probably like...

[Tripping over the Truth](#)

[The Metabolic Approach to Cancer](#)

[Cancer as a Metabolic Disease - Journal](#)

[Cancer as a Metabolic Disease - Book](#)

[Keto for Cancer](#)

[Radical Remission](#)

[Anticancer](#)

About the Author of “The Emperor of All Maladies”

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Siddhartha Mukherjee is a cancer physician and researcher. He is an assistant professor of medicine at Columbia University and a staff cancer physician at the CU/NYU Presbyterian Hospital. A former Rhodes scholar, he graduated from Stanford University, University of Oxford (where he received a PhD studying cancer-causing viruses) and from Harvard Medical School.

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Brian Johnson loves helping people optimize their lives as he studies, embodies and teaches the fundamentals of optimal living—integrating ancient wisdom + modern science + common sense + virtue + mastery + fun. Learn more and optimize your life at optimize.me.