

## The emperor of all maladies: *A biography of cancer*

Stanley Riddell

*J Clin Invest.* 2011;121(1):5-5. <https://doi.org/10.1172/JCI45710>.

### Book Review

Through the centuries, cancer has struck terror in patients and challenged and perplexed the philosophers, physicians, and scientists who have sought to understand and treat it. In *The Emperor of All Maladies*, oncologist and research scientist Siddhartha Mukherjee makes a bold effort to chronicle the biography of cancer. What has emerged from his comprehensive undertaking is a compelling story of human suffering, perseverance, ingenuity, and understanding. The book traces the nihilism and mysticism that were understandably pervasive in the earliest days of cancer therapy and highlights conceptual advances made by early physicians and pathologists. Key scientific advances in fields far removed from medicine contributed to the development of cancer surgery, radiation therapy, and chemotherapy, all of which remain major treatment modalities today. Mukherjee chronicles the initial clinical application of these without aggrandizing the accomplishments or ignoring the failings of the larger-than-life figures such as Halsted, Farber, Frei, Freireich, and Kaplan. In each case, patients' stories are intertwined in the narrative, revealing the identities of those who are involved in the most difficult fight in what emerges as a public war to rid humanity of cancer. Mukherjee provides a reminder of the seductive nature of current thinking in medical science, which can stifle the quest for improved treatments and understanding. Radical surgery for breast cancer and efforts to use more intensive [...]

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# The emperor of all maladies

*A biography of cancer*

Siddhartha Mukherjee

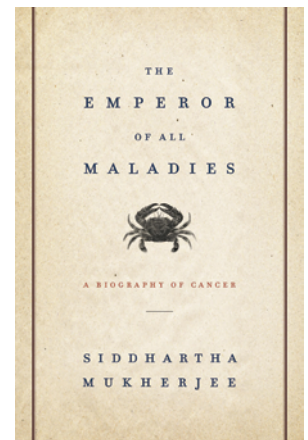
Scribner, New York, New York, USA, 2010.

592 pp. \$30.00. ISBN: 978-1-439-10795-9 (hardcover).

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Through the centuries, cancer has struck terror in patients and challenged and perplexed the philosophers, physicians, and scientists who have sought to understand and treat it. In *The Emperor of All Maladies*, oncologist and research scientist Siddhartha Mukherjee makes a bold effort to chronicle the biography of cancer. What has emerged from his comprehensive undertaking is a compelling story of human suffering, perseverance, ingenuity, and understanding.

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Mukherjee provides a reminder of the seductive nature of current thinking in medical science, which can stifle the quest for improved treatments and understanding. Radical surgery for breast cancer and efforts to use more intensive chemotherapy to treat all forms of solid tumors – well-intentioned approaches that proved to be fallacious – serve as poignant examples; in retrospect, they are akin to military “shock and awe” and underscore the notion that real success in cancer treatment and prevention is predicated on understanding the fundamental

processes that lead to its development. In the cases of chemotherapy and radiotherapy, Mukherjee balances the failures with notable accomplishments that include the cure of most patients with childhood acute lymphoblastic leukemia and of a significant fraction of patients with adult leukemia, Hodgkin disease, and lymphoma.

Mukherjee also highlights the emergence of advocacy for cancer research driven by Mary Lasker and Sidney Farber, who thrust the issue of research funding for cancer into national prominence. This method of engaging an emotional and responsive public is illustrated by the inspiring account of the origins of the Jimmy Fund, a charity built around a young boy stricken with cancer who appeared on a national radio program to tell America he loved baseball. “Jimmy” returns later in the book, a victor in his personal war on cancer. Although this tale may resonate with an American audience, as a Canadian, I was slightly disappointed that the story of Terry Fox was not included. Fox suffered a leg amputation as a result of osteogenic sarcoma and embarked on a courageous run across Canada in 1980 to raise public awareness of funding for cancer research. The emergence of pulmonary metastasis forced Fox to abandon his Marathon of Hope after more than 3,000 miles. The nation responded to this tragedy by raising more than \$10 million in a few hours, and Fox's legacy continues to this day through the Terry Fox Foundation.

The book reviews the seminal studies that linked smoking and lung cancer, which spawned the important disciplines of cancer epidemiology and prevention. Tragically, the work documenting the association of smoking and cancer was performed by researchers who themselves succumbed to the carcinogen they were studying. Thankfully, Mukherjee does not shy away from docu-

menting the hideous deception of tobacco companies, which, in their quest for profit, attempted to bury the health dangers of tobacco. Sadly, this deadly carcinogen continues to be legally dispensed to the public.

A recurrent theme is how research in unrelated fields often provided major insights and led to critical advances in understanding and treating human cancer. The essence of cancer as a genetic disease, driven by mutations that are often incurred by carcinogen exposure and co-opt the normal cell machinery to promote cell survival and proliferation, gradually unfolds. The landmark discoveries of oncogenes, tumor suppressor genes, and mutations in signaling and survival pathways are relayed with the flair of a mystery novelist, Mukherjee skillfully revealing the personalities of the patients, the malignant cells, and the scientists involved. These discoveries have led to targeted therapies for cancer that are dramatically improving the outcome for many patients.

Although age-adjusted cancer death rates are now declining significantly, the American Cancer Society estimates that there will still be more than 500,000 cancer fatalities in the United States in 2010. This serves as a reminder that in spite of our progress, the quest to understand cancer is not yet completed. Mukherjee cautions us that the task remains formidable because we have learned that the pathways for growth, survival, and adaptation that have been co-opted by malignant cells and might be targeted with future cancer therapies are essential for normal cells. *The Emperor of All Maladies* provides a wonderfully vast and compelling account of this disease, skillfully weaving the stories of patients' lives and scientific discovery into the fabric of a book that I believe will be thoroughly enjoyed by the public, medical students, physicians, and scientists alike.