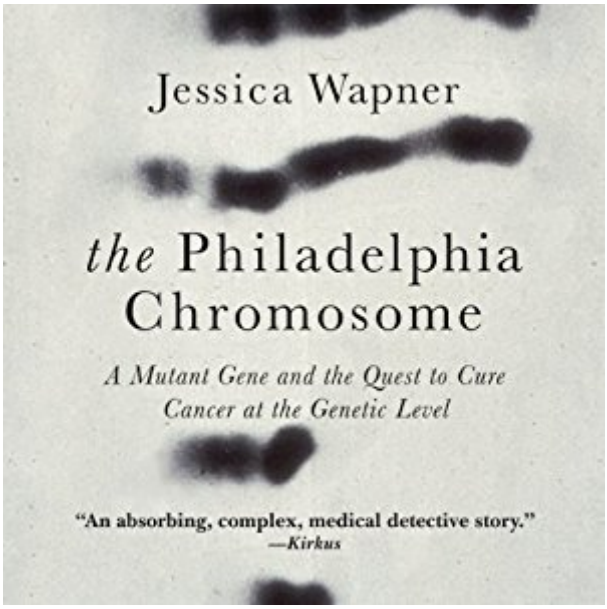
The Philadelphia Chromosome: A Mutant Gene And The Quest To Cure Cancer At The Genetic Level



Synopsis

Almost daily, headlines announce newly discovered links between cancers and their genetic causes. Science journalist Jessica Wapner vividly relates the backstory behind those headlines, reconstructing the crucial breakthroughs, explaining the science behind them, and giving due to the dozens of researchers, doctors, and patients whose curiosity and determination restored the promise of a future to the more than 50,000 people diagnosed each year with chronic myeloid leukemia (CML). It is an astonishing tale that will provide victims of other cancers and their loved ones realistic hope that cures may yet be found in their lifetimes. The Philadelphia Chromosome charts the milestones that led to present-day cancer treatment and tells the inspiring story of the dedicated men and women who, working individually and in concert, have sought to plum the mysteries of the human genome in order to conquer those deadly and most feared diseases called cancer.

Book Information

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Customer Reviews

Reading the Philadelphia Chromosome transformed me into a mini scientist majoring in CML, Chronic Myelogenous Leukemia. I was diagnosed with CML in November of 2003, which required keeping up-to-date on news relating to CML. When I heard about the Philadelphia Chromosome by Jessica Wapner, I was anxious to add it to my shelf of resources.Reading the book with pencil in hand to highlight new facts as well as valuable previous knowledge, I found myself marking information on every page.When I was diagnosed my oncologist informed me that if there was ever

a good time to get CML, it was now. At that precise moment, I had no idea what he was talking about. He may have elaborated, but in that moment of shock, I didn't hear much. Wapner's book has renewed my appreciation of that conversation every time I swallow my oral chemotherapy pill, Gleevec.I have an entire file cabinet filled with lab results since 2003. My oncologist reviews the findings with me twice a year, but after reading the Philadelphia Chromosome, my understanding of the labs has improved. I have registered for a couple of CML conferences and am confident I will easily grasp new information presented after reading this book.Years ago I started writing a book about living with CML. I found it too depressing to continue, however, not abandoning the therapeutic effect; I turned it into a blog, which I update once a month. marycrocco.wordpress.com Being helpful to a few readers who have stopped by makes it worthwhile.Wapner shared a story of a patient who cherished her Gleevec and defended it with her life. I do the same thing, always insisting to sign for it and checking the delivery time is set for the morning.

This book is divided into roughly three parts. The first part consists of an account of how scientists tracked a certain kind of leukemia down to its genetic origins. Some of the explanation here can be a little difficult. But don't be put off. While this section doesn't necessarily make for light bedtime reading - it is accessible. Wapner presents the material in short, easily digestible chapters. She frequently reviews what's been covered so far, and she is a master of writing clear, logical sentences that include analogies from everyday life. So you will readily enough be able to understand this section if you just turn off the TV and concentrate for short stretches.Your diligence will be rewarded. At the end of this section, you'll have a clear understanding of how this type of cancer, and of how cancers in general, can arise in the very core of our cells. You'll also understand how a drug can be tailored to specifically stymie the action of the aberrant chromosomes.The second section deals with how Brian Druker and others ushered such a drug through the necessary test phases. Reading about this often frustrating process, you'll learn how tests must progress from animal to human subjects in order to eventually try for FDA approval. The pill that was eventually formulated proved to be so much more successful at fighting back the cancer than previous drugs or procedures, it was fast-tracked for FDA approval. Here the reading gets easier, although perhaps not quite as interesting.Finally, Wapner recounts how the drug was named Gleevec and was marketed. She also tells how this pioneering drug has opened the door to what's become a flood of other drugs targeted at blocking the chemical chain of events that arise from a mutated gene.

n 1959 two Philadelphia researchers, David Hungerford, a scientist at the Fox Chase Cancer

Center, and Peter Newell, a physician studying cancer at the University of Pennsylvania School of Medicine, made a momentous discovery that revolutionized the understanding of cancer. Hungerford, who specialized in studying and photographing chromosomes from a variety of species, looked at a slide of the cancerous cells from a patient with chronic myelogenous leukemia (CML), using a technique of halting chromosomes during division that was designed by Newell. To his great surprise, Hungerford noticed that one of the chromosomes was significantly shorter than it should have been. He took a photograph of the shortened chromosome and showed it to Newell, who subsequently prepared slides of cancerous cells from several other people with CML. Each of these patients had the same abnormal chromosome. The two published their findings in a three paragraph article in Science the following year. The study was largely ignored, as the study of genetics was in its infancy, and essentially no one suspected that cancer could be caused by chromosomal abnormalities.Over a decade later Janet Rowley, a geneticist at the University of Chicago, studied these same cells from CML patients, using staining and visualization techniques that weren't available to Hungerford and Newell. She found the same shortened chromosome, which was by then determined to be chromosome 22, but she also found that chromosome 9 was also abnormal, being longer than it should have been.

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