The Story of Interferon: The Ups and Downs in the Life of a Scientist

Kari Cantell
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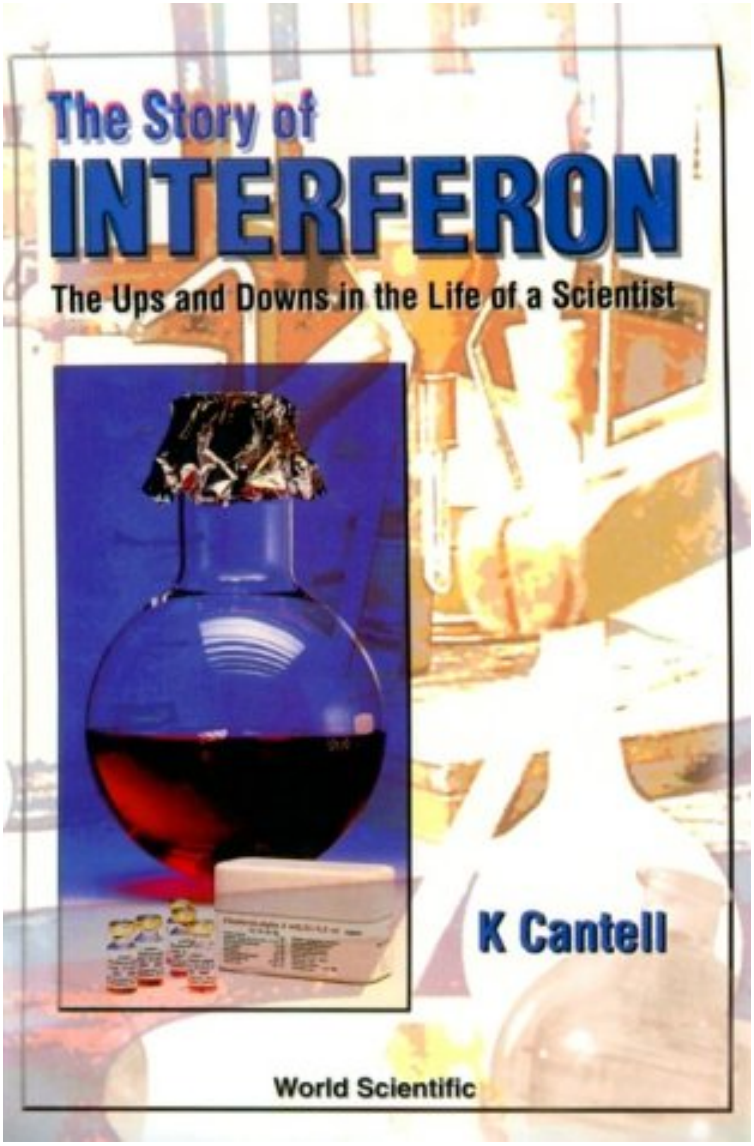

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Kari Cantell : The Story of Interferon: The Ups and Downs in the Life of a Scientist before purchasing it in order to gage whether or not it would be worth my time, and all praised The Story of Interferon: The Ups and Downs in the Life of a Scientist:

The Finnish doctor Kari Cantell is one of the scientists to whom the development of the drugs called interferons can be attributed. Interferons have achieved an important place in the treatment of cancer, viral infections and multiple sclerosis. In the 1960s Cantell and his coworkers developed a method for the preparation of interferon in white blood cells. During those years, most of the global production of interferon took place in Finland and the vast majority of the clinical studies in the world employed Finnish interferon.The memoirs of Cantell record interferon's long road from the laboratory to the pharmacy shelf. The journey took more than three decades and involved moments of triumph as well as desperation in the lives of many scientists.The book will give the reader a glimpse of the world of science; how research is carried out in the laboratory and the clinic; how the mind of the scientist operates and how he experiences success and failure; how warm friendships and bitter conflicts develop between investigators; how the involvement of money and politics harms as well as helps research.The Interferon Story is a richly rewarding book written for ordinary people without a basic knowledge of biology or medicine. It can be read as a thriller describing the struggle of scientists against the most feared diseases of mankind.

From The New England Journal of MedicineInterferons have proved therapeutically effective for the control and sometimes cure of viral infections, cancer, chronic infections in immunodeficiency, and multiple sclerosis. Because they were the first previously unavailable proteins with clinical and economic importance to be produced by recombinant DNA technology, interferons contributed critically to the growth of the biotechnology industry. On the molecular and cellular levels, interferons, as an exemplary group of cytokines, have had a critical role in defining signal-transduction pathways, modulation of gene expression, and promiscuity of cellular actions of cytokines. The Story of Interferon, written by one of the principals in the clinical evolution of interferons, is a reassuring example that perseverance can bring an important scientific observation to clinical application. During the more than 30 years from the discovery of interferons to their production by biotechnology, many scientists and clinicians believed in the clinical potential of these cytokines on the basis of preclinical data. Among the most important of them was a Finnish scientist, Kari Cantell, who dedicated his career to making interferons a clinical success. His goal was to produce enough interferons from leukocytes in donated blood to treat patients. Cantell, whose articles have reached the heights of "Citation Classics," writes in this book about his professional passion, his loves, and his life. Although it is unclear whether this book is intended for a lay or professional audience, Cantell describes the satisfactions, frustrations, and luck that are all part of laboratory science. For young scientists, there are the lessons of focus, dedication, and continued hard work ("Our honeymoon was limited to the sleeper train journey from Oulu to Helsinki, for I was also wedded to my work"). "Me too" science and short-term goals usually result in few important advances ("It is probably difficult for a layman to appreciate how easily scientists are attracted to follow whichever are the currently fashionable trends in their field"). Implicit in the account is the importance of enlightened administrators in supporting creative and dedicated scientists who are working on an important problem ("Most scientists were openly critical in their attitude, or even disparaging.... [The director] did not hesitate for a moment and gave my interferon studies his full support, showing in this way his attitude towards long-term research activities"). There is no better example of the importance of the protected environment provided by federally funded medical-research institutes for the undertaking of major investigations requiring long-term commitment. Cantell worked in an era when international science was maturing from bud to flower. His accounts of important international contributions to the knowledge of interferons illustrate the critical role of the modern international community of scientists. Cantell devoted his career to the production of clinically useful quantities of pure proteins that are produced by most vertebrate cells in only picogram amounts. When the biotechnology link was made by Charles Weissmann in Switzerland, not only did effective techniques for production evolve, but also the entire family of proteins that constitute the interferons produced by leukocytes was unexpectedly discovered. Working with Weissmann, Cantell was also introduced to the competitiveness that can be part of cutting-edge science ("As a result of these items of news and rumors, the pace of work in Weissmann's laboratory accelerated.... When I made my next visit to Charles, I noticed a sleeping bag in his office, and that told me a lot"). Without Cantell's dedication, the clinical benefits of interferons probably would not have been realized for several more years. But all forms of technology advance with the rapidity with which computer hardware changes, and likewise the techniques that Cantell developed so laboriously for producing interferons have been supplanted by new, economically feasible biotechnological methods. I believe Cantell is correct: "The [medical] story of interferons has only begun." But interferons are not the double helix, and Cantell did not have the luck of time, place, or situation that Watson did. Thus, this book will probably never reach the New York Times bestseller list. The story, however, is a readable and personal account of the workings of international science through the eyes of a scientist, revered in his field, who focused on translating an important discovery to clinical application. The worldwide studies of many scientists and clinicians have now confirmed that human interferons are antivirals effective for treating chronic infections by both RNA and DNA viruses, can ameliorate an immunopathologic disease such as multiple sclerosis, and are a systemic cancer treatment with a different mechanism of antitumor action. ed by Ernest Borden, M.D.

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