

Book Review: Microcompetition with Foreign DNA and the Origin of Chronic Disease

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Abstract

Review of Microcompetition with Foreign DNA and the Origin of Chronic Disease by Hanan Polansky, PhD
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I have to admit it is not an easy book to read. But I found it to be immensely rewarding and thought-provoking. I thank you for giving me the opportunity to be among the first group of people who get their hands on this novel book.

Dr. Polansky in the book proposed an intriguing theory that competition for limited transcription factors between the host transcription units and those of foreign origin e.g., viruses, is the underlying cause for a number of chronic diseases, such as cancer, obesity, autoimmune disease, etc. The proposed theories are well-reasoned and abundantly supported by experimental data. It helps to explain many dilemmas encountered during clinical studies. I found that the theory is groundbreaking and will likely open doors to many exciting research areas and treatment options.

Compared to physical or chemical sciences, biology and medicine lag behind and remain experimental disciplines, which are heavy on experimental data but thin on applicable theories that could guide future directions. In this sense, Dr. Polansky's book is nothing short of revolutionary. It makes people stand back from their daily experiments, and start to look at the whole picture, and to view biology as an interacting and interconnected system. On the other hand, the book may be a step ahead of itself, meaning the field is not yet mature enough to embrace these mathematical theories proposed in the book.

I work in the field of gene therapy, in which up to now, the most efficient gene delivery vehicles have been of viral origin, with retrovirus and adenovirus-based vectors being the most dominant players. In the minds of people concerned

about the safety of these approaches, insertional mutagenesis into the host genome by retroviruses and acute immune reactions to adenoviruses rank on the top of the list. I have yet seen anyone in the field who realizes that the introduced foreign DNA associated with the delivery vector may have a profound impact on human health through microcompetition for host transcriptional factors. The major impact of this book on many specialties including gene therapy will be felt strongly in the coming years.

If I have to point out the shortcomings of the book, I do feel that the author bet too much on the N-box/GABP system, since we know that transcriptional controls of human genes are far more complicated and our understanding far from complete. Also, the author could have spent a few more pages on treatment sections of chronic diseases.

Thanks again for giving me the opportunity to review the book.

Biography

Dr. Liqun Zhang received her undergraduate degree in 1991 from Tsinghua University, Beijing, China, studying in the Department of Biological Sciences and Biotechnology. From 1991-1997 she studied at the University of Maryland at Baltimore, School of Medicine, Division of Human Genetics. Here, she earned a PhD for studying the molecular characterization of mouse thromboxane synthase gene under Dr. Rong-Fong Shen. From 1997-2002, Dr. Zhang completed a postdoctoral fellowship at the University of North Carolina at Chapel Hill at the Cystic Fibrosis/Pulmonary Research and Treatment Center under Richard C. Boucher, MD. She is currently a Research Associate at the same center. Dr. Zhang is a member of the American Society of Microbiology and has contributed to five peer-reviewed journal articles, 11 abstracts, one book

chapter, and one patent.

References

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