



Careful what you say

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Making Sense of Genes

Author: Kostas Kampourakis

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Kostas Kampourakis' book, *Making sense of genes 2017* (ISBN 978-1-107-56749-8), is a 260-page historical review of how the term gene was coined, what misconceptions are there about this term and why these misconceptions need to be challenged.

The book is divided into three main sections. Chapters 1–4 discuss the historical perspective on theories regarding items of hereditary. The book reviews original research that led to our understanding of chromosomes, DNA and genes. It explains how an oversimplified explanation developed; that of a gene being considered to be a stretch of DNA from which a protein is made and a mutation in the gene causes an abnormal formation or no formation of the protein.

I found it an interesting read, mainly because working in the field means I tend to read individual manuscripts focussing on one gene. This book makes the reader step back and look at the whole picture. It leads us piecemeal through old dogmas and unravels long established theories with examples. By reminding us of historical theories that have subsequently been proven wrong, it reinforces how

some current theories will also be disproven and how much about the human genome is still unknown.

Chapters 5–8 discuss how the media portrays genetic diseases. They also reflect on the limitation of Direct to consumer testing.

Chapters 9–12, for me the most interesting, reflect on the role of developmental processes and how genes operate within these processes. Kampourakis also discusses how single genes can account for variation in characters but cannot alone explain their origin. Lastly, Kampourakis discusses how genes are not the masters of the game but are subject to complex regulatory processes.

Chapter 11 entitled “Genomes are more than the sum of genes” provides a nice summary of the complex nature of the epigenetic mechanisms known to date. My favourite chapter, Chapter 12, discussed Limitations in the Study of Genomes. A timely reminder for those who profess that genome testing will fix all of the deficiencies in this theory.

I read the book over several weeks; it would be hard to read in one go as some of the chapters are dense and long. This is not a light read. However, it is easy to pick up and read each chapter as an individual section.

Kampourakis provides some useful key references for aspects that are of interest and I will be using many of the examples for teaching purposes.

The book provides a timely reflection on how much is left to understand about what genes do and why our simple explanation is repeatedly challenged by different clinical and scientific scenarios.

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