RNA Worlds: From Life's Origins to Diversity in Gene Regulation

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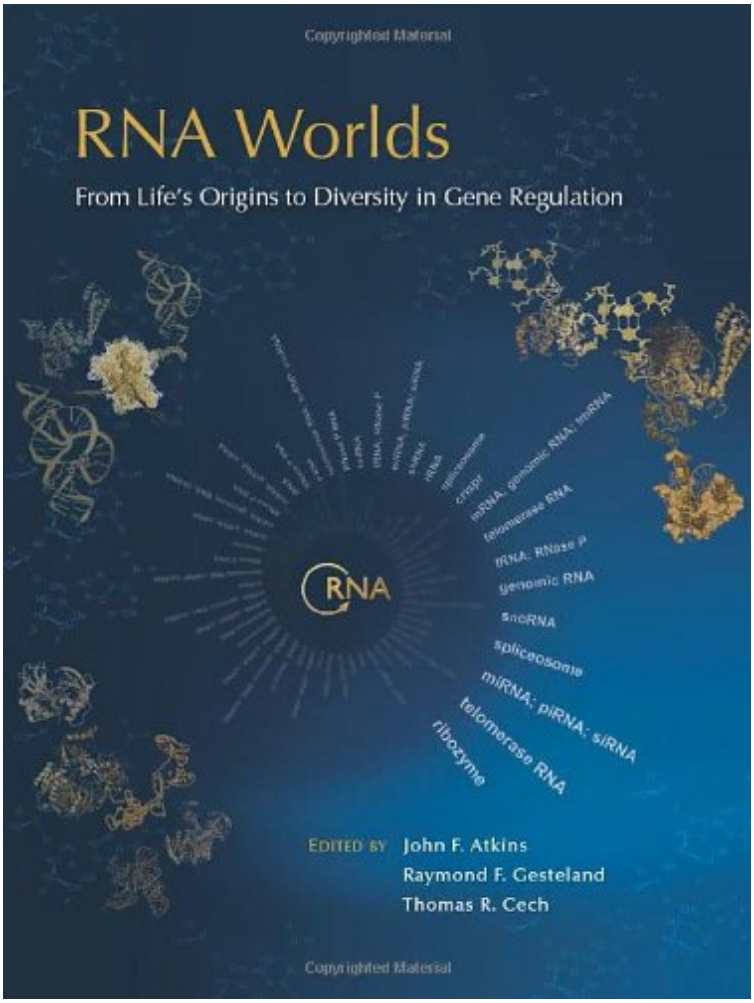

#1484198 in Books Cold Spring Harbor Laboratory Press 2010-09-24Original language:EnglishPDF # 1 8.80 x 1.00 x 11.10l, 3.25 #File Name: 0879699469366 pages | File size: 16.Mb

From Brand: Cold Spring Harbor Laboratory Press : RNA Worlds: From Life's Origins to Diversity in Gene Regulation before purchasing it in order to gage whether or not it would be worth my time, and all praised RNA Worlds: From Life's Origins to Diversity in Gene Regulation:

8 of 8 people found the following review helpful. Amazingly informative and instructive, but not about Life's OriginsBy MehetabelleThis is a professional book. It's a collection of RECENT research papers intended for bio-science professionals. By the way, if the price seems to put this book out of reach, grieve not! Inter-library loan works! Ask your public library or universiity's reference librarian to borrow it for you. Cold Spring Harbor has posted some/many of the articles online, full text! I added 3 blank spaces to the URL so that will not delete or truncate it, so please omit the 3 spaces when you enter it into your locator: [...] cshperspectives.cshlp.org/cgi/ collection/ rna_worldsRNA Worlds (plural) is one of the most fabulously instructive books that I have read, including textbooks

and research journals. It has gorgeously printed with full color graphics, photographs, diagrams, tables and impressively complete references. The text is well written and clear. Every article has the email address of the principal investigator.The prefaces to the two earlier editions are in themselves informative.It covers many different aspects of RNA. The chapters on riboswitches, ribosomes and small RNA were the most fascinating. The final chapter about non-coding RNA was perhaps the most easy to read for non-bio-science professionals. It summarizes the practical applications of RNA research in medicine and drugs largely in inhibiting gene expression. For example, non-coding RNA can inhibit the errors in telemere lengthening. Telemere length is indicative of longevity.Every chapter/article has conclusions and closing comments. Unfortunately, it is in these short sections that some of the authors even mention the role of RNA in the origin of life. Nevertheless, the comments were compelling. I learned a lot about the latest hypotheses about RNA in a pre-biotic world and how RNA might have evolved, although some of the hypotheses about the transition (not translation) of RNA from then to now are vague and/or not credible.

Once thought to be just a messenger that allows genetic information encoded in DNA to direct the formation of proteins, RNA (ribonucleic acid) is now known to be a highly versatile molecule that has multiple roles in cells. It can function as an enzyme, scaffold various subcellular structures, and regulate gene expression through a variety of mechanisms, as well as act as a key component of the protein synthesis and splicing machinery. Perhaps most interestingly, increasing evidence indicates that RNA preceded DNA as the hereditary material and played a crucial role in the early evolution of life on Earth. This volume reviews our understanding of two RNA worlds: the primordial RNA world before DNA, in which RNA was both information store and biocatalyst; and the contemporary RNA world, in which mRNA, tRNA, rRNA, siRNA, miRNA, and a host of other RNAs operate. The early chapters of the book analyze the role of RNA in the first life forms and the appearance of cells. Subsequent chapters examine riboswitches and ribozymes, establishing what the RNA molecule is capable of alone. The book goes on to discuss the evolution of ribosomes and the functions of RNPs, before reviewing the recent work that has revolutionized our understanding of gene regulation by non-coding RNAs, including miRNAs and siRNAs. Also covered are viral RNAs, telomerase RNA, and tools for scientists who work on RNA. The book is thus essential reading for all molecular biologists and biochemists, as well as chemists interested in RNA technology, information storage, or enzyme catalysis.

This striking volumeis beyond doubt one of the most influential books in biology over the last few decades. --The Quarterly of Biology