Everyday RNA

The Future of RNA Medicine

This book describes the development of biological RNA therapeutics their potential to transform modern medicine. The book is intended to be accessible to a scientifically literate layperson but could also be used in undergraduate and graduate classrooms. It is divided into three parts. The first section introduces the inner workings of RNA in our cells, how it is produced, what it is used for, and what happens when things go wrong. This section will familiarize the reader with the general principles of RNA biology and provide context through a few well-known diseases. The second section focuses on emerging RNA therapeutics, including antisense oligonucleotides, double-stranded RNAs, and now the now widespread use of mRNA vaccines. The final section describes RNA-guided genome editing as a new therapeutic intervention. This section focuses on CRISPR-cas9, how RNA acts to guide the enzyme to mutated DNA, and the potential for this approach to combat diseases that have long plagued the medical community. The book is intended to provide an honest appraisal of the potential of RNA medicine, the upsides as well as the challenges in an easy-to-understand format that will be useful to all.

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