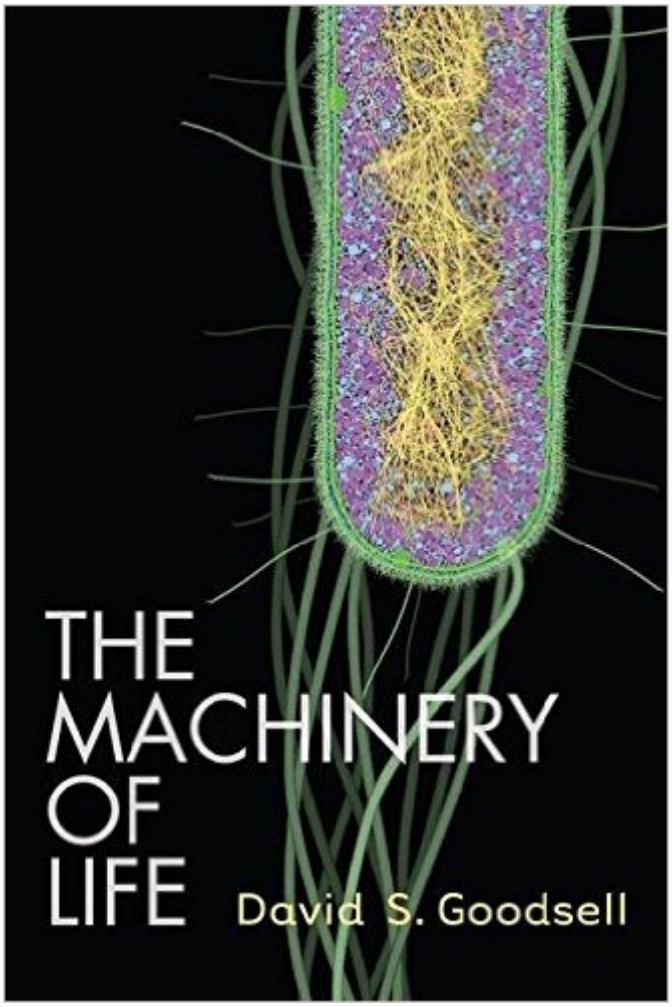
The Machinery Of Life



Synopsis

Imagine that we had some way to look directly at the molecules in a living organism. An x-ray microscope would do the trick, or since weâ ™re dreaming, perhaps an Asimov-style nanosubmarine (unfortunately, neither is currently feasible). Think of the wonders we could witness firsthand: antibodies atta- ing a virus, electrical signals racing down nerve fibers, proteins building new strands of DNA. Many of the questions puzzling the current cadre of sci- tists would be answered at a glance. But the nanoscale world of molecules is separated from our everyday world of experience by a daunting million-fold difference in size, so the world of molecules is completely invisible. I created the illustrations in this book to help bridge this gulf and allow us to see the molecular structure of cells, if not directly, then in an artistic rendition. I have included two types of illustrations with this goal in mind: watercolor paintings which magnify a small portion of a living cell by one million times, showing the arrangement of molecules inside, and comput- generated pictures, which show the atomic details of individual molecules. In this second edition of The Machinery of Life, these illustrations are presented in full color, and they incorporate many of the exciting scientific advances of the 15 years since the first edition.

Book Information

Hardcover: 168 pages
Publisher: Copernicus; 2nd ed. 2009 edition (April 16, 2010)
Language: English
ISBN-10: 0387849246
ISBN-13: 978-0387849249
Product Dimensions: 6.3 x 0.6 x 9.4 inches
Shipping Weight: 14.4 ounces (View shipping rates and policies)
Average Customer Review: 4.7 out of 5 starsÂ Â See all reviewsÂ (86 customer reviews)
Best Sellers Rank: #79,996 in Books (See Top 100 in Books) #45 inÂ Books > Science & Math > Biological Sciences > Biology > Molecular Biology #131 inÂ Books > Textbooks > Medicine & Health Sciences > Medicine > General #312 inÂ Books > Textbooks > Science & Mathematics > Biology & Life Sciences > Biology

Customer Reviews

The Machinery of Life (2nd Edition) is an excellent introduction to molecular biology. The book uses concise text and beautiful illustrations to reveal the mechanisms of the molecular machines in every life, making you wonder at the achievements of these invisible molecules.The unique features of this

book are the watercolor paintings that display the cellular interiors with all the molecular machines presented with scientific rigor. These paintings can be seen as the "snapshots" of the cell at high magnification (1,000,000X). The author carefully chose the composition so that the desired molecular machines and the relationship between them are clearly revealed. Some paintings are more than snapshots: they are smartly designed to show certain processes occurring in the cell, such as the death of a cell and the life cycle of a virus. These paintings can be thought as movie frames that are seamlessly fused together.Besides these paintings, space-filling computer renderings are used to illustrate the detailed structures and functions of the molecular machines. Two kind of styles are used. One is the unique style used by the author for the Molecule of the Month series at Protein Data Bank (PDB). Molecules rendered with this style has a hand-drawing appearance, and blend seamless with the watercolor paintings. The other style is commonly used by scientists to illustrate the atomic structures and interactions of small molecules. Personally I think these renderings are too computer-like, and do not fit in very well with other illustrations. But this is a very minor complaint.Dr. Goodsell is a master of using color to present scientific images.