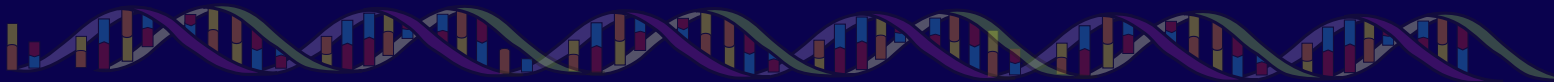
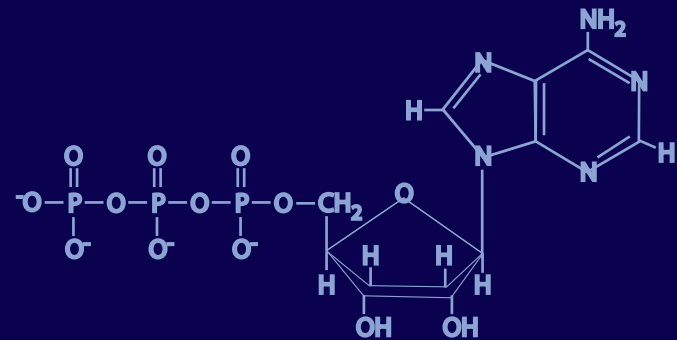
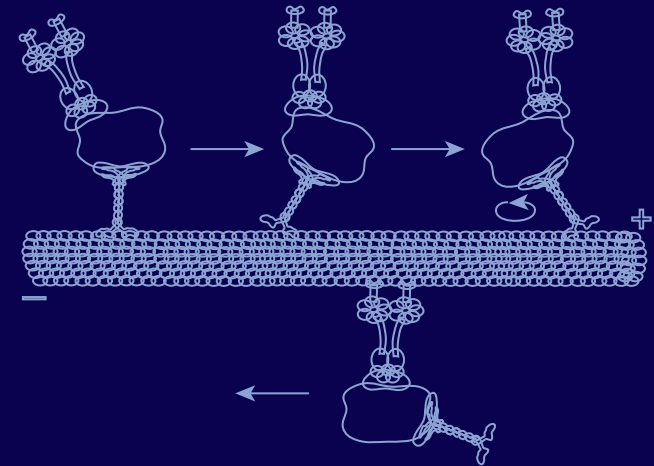
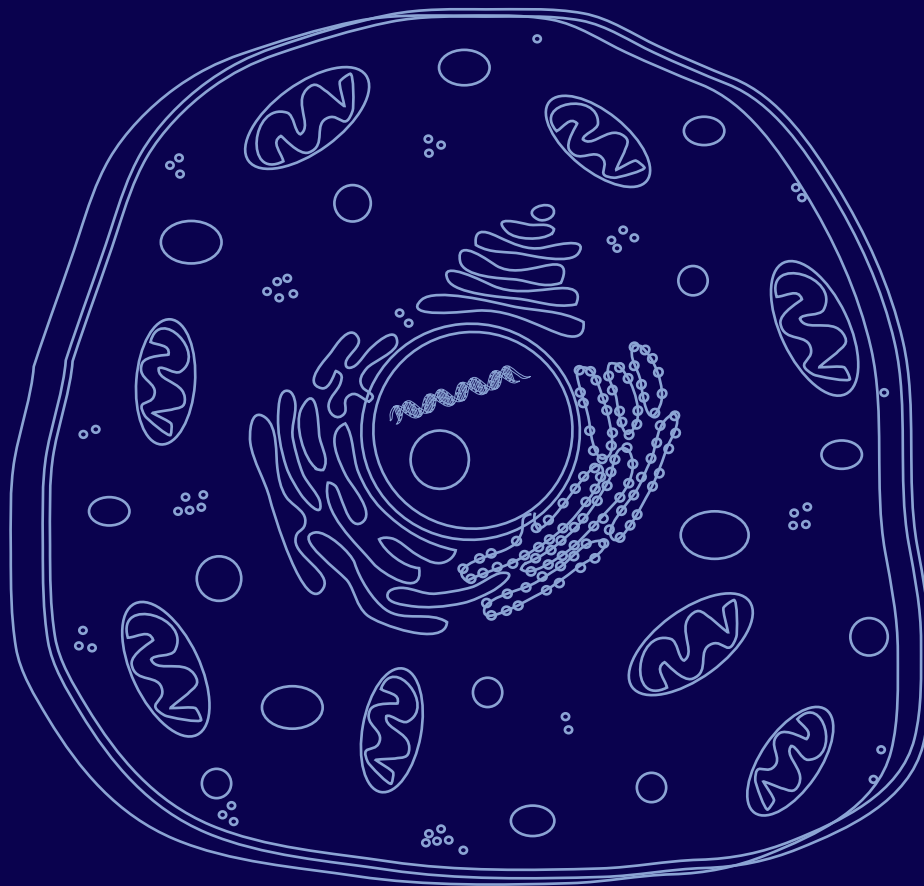


# CELLS

## MOLECULES AND MECHANISMS



## CELLS: MOLECULES AND MECHANISMS

by E. V. Wong, Ph.D.

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# PREFACE

Yet another cell and molecular biology book? At the very least, you would think that if I was going to write a textbook, I should write one in an area that really needs one instead of a subject that already has multiple excellent and definitive books. So, why write this book, then? First, it's a course that I have enjoyed teaching for many years, so I am very familiar with what a student really needs to take away from this class within the time constraints of a semester. Second, because it is a course that many students take, there is a greater opportunity to make an impact on more students' pocketbooks than if I were to start off writing a book for a highly specialized upper-level course. And finally, it was fun to research and write, and can be revised easily for inclusion as part of our next textbook, High School Biology.

As with every textbook, this one owes a huge debt to the many excellent textbooks that came before it. And in fact, because I consider this more of a teaching text than a reference text, if a student is serious about this subject area, and has the funds, I very strongly recommend picking up one of the classic tomes in this field of biology, either *Molecular Biology of the Cell* by Bruce Alberts and colleagues (Garland Science), or *Molecular Cell Biology*, by Harvey Lodish and colleagues (W.H. Freeman & Co.). But to come back to a reason for writing my own text, as wonderful as those two books are, they are actually *overloaded* with information for an average introductory (sophomore-level) course in cell biology.

One of the areas that was carved out of the primary text is the historical perspective and experimental design that led to the discovery of the molecules and mechanisms described. This was a difficult decision because I am a strong believer in understanding the scientific thought process and learning from history. In the end though, I decided to provide that kind of information as ancillary material that can be included by course instructors at their discretion, because long experience and many conversations with students indicate that even if they thought it was going to be “on the test”, they tended to gloss over the “names and dates” stuff while studying, and on my end, I would rather use exam “space” to test them on information more relevant to success

and understanding of more complex concepts later in the course (or in more advanced coursework).

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Axolotl Academic Publishing Company is devoted to the idea that only a scientifically literate general population can make sound decisions on a host of important governmental and non-governmental matters that involve the many advances in science and technology that have occurred in the past few decades. Paradoxically, the science literacy of the average citizen did not keep pace with development by our leading scientists and engineers, and the widening gap has led to many conflicts that, in our opinion, may not exist if everyone was fully versed in the science. Complex issues such as genetic engineering or stem cell research have been boiled down to erroneously simplified sound bite definitions. Providing free textbooks is just one step of many needed to lower some of the economic barriers to quality science education.

Although I must claim responsibility for much of the book (for better or worse), I can only take credit for a little of the art. My talented illustrator, Patrick J. Burton, did most of the original artwork, and served as a reviewer of the text as well. Sources for all other figures are acknowledged in the figure caption.

Finally, this book would not have come about had it not been for the unflinching support from my wife and children, who are ultimately the reason for everything I do.

E.V.Wong

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