In this whimsical fantasy, members of the domain Bacteria gather for a one day conference in Prokaryotic pond. During the conference various bacteria give talks on salient aspects of their metabolism. Session topics include bacterial structure and function, unique habitats, antibiotic resistance mechanisms, and pathogenesis. In one session we find *Helicobacter pylori* describing its unique habitat in the stomach, and in another session *Mycobacterium tuberculosis* relates its pathogenesis in the lung. A recurring theme of the conference is the randomness of genus and species names given to bacteria by humans. The conference concludes with the bacteria proposing alternative names for *Homo sapiens,* discussing the relative merits of each alternative, and voting to select a new name.

The Other End of the Microscope cleverly relates the topics from a bacterial point of view. From *Enterobacter aerogenes* waving its flagella to capture the crowd's attention to *Micrococcus luteus* relating how it felt half-drunk after the acetone-alcohol step of the Gram stain, Koneman strives to present the material in an entertaining and unique way. The book is not designed to be a comprehensive, educational microbiology text. Rather, it relates many interesting aspects of key bacteria in an enjoyable manner. Although the style of the book is clearly fiction, the narratives portray many features of basic microbiology, which are often explained through creative examples. At one point, *Micrococcus luteus* likened the structure of its cell wall peptidoglycan to the studs and cross braces that make up the walls of a house. The book also includes numerous historical vignettes that enhance the microbes' tales and enlighten the reader on the history behind many classic discoveries.

In the preface Koneman states, "These stories, told here in their own 'voices,' are intended both to tantalize the most experienced microbiologist and to provide the inquisitive with a better understanding of the hidden world of microbes." In this respect, Koneman is right on the mark! Microbiology-minded high school students, biology teachers, and microbiology professors will learn more about microbes and gain a new perspective on the significance and wonders of the microbial world.

While the book is an informative and entertaining read, it does have a few drawbacks. At times the presentation from the bacterial point of view seems forced and tiresome. To truly enjoy the book, one must buy into the fantasy and be willing to accept those instances in which Koneman strains for effect. Some themes recur unnecessarily throughout the book. For example, the bacteria often bemoan their dissatisfaction with human-imposed names and profess their blamelessness regarding the suffering they cause. Additionally, the final session on renaming *Homo sapiens* is pure fantasy and has little value.

The Other End of the Microscope can provide high school teachers and college professors with numerous compelling stories to captivate and enhance student interest when teaching microbiology. The book lacks broad or deep coverage of any one topic, and would therefore not be an appropriate primary text for use in the classroom. This book, however, would supplement the repertoire of any teacher with attention-grabbing anecdotes to intersperse throughout microbiology lessons.

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MOLECULAR BIOLOGY

Dr. Folkman's War – Angiogenesis and the Struggle To Defeat Cancer. By Robert Cooke. 2001. Random House (ISBN 0-375-50244-0). 366 pp. Hardback $25.95.

As a young physician conducting research, Judah Folkman noticed that large tumors were well vascularized, while small tumors had very limited blood supplies. Folkman reasoned that if he could find a way to block blood vessels from growing within a tumor, then he might be able to prevent a tumor from growing uncontrollably. Folkman's insight may seem obvious and logical to beginning biology students who know that cells rely on blood vessels for nutrition and gas exchange. Yet, his peers actively criticized his vision of treating cancer by blocking a tumor's blood supply. For well over 20 years Folkman's research lab at Harvard Medical School has sought to understand how blood vessels develop, specifically the identities of molecules that both encourage and discourage blood vessel growth. This arduous, yet fruitful scientific quest included numerous scientific and political obstacles that tested Folkman regularly. Now Judah Folkman's vision is coming into focus: angiogenesis is a remarkably active area of research, and drugs that discourage angiogenesis are undergoing clinical trials in cancer patients. Early results from clinical trials indicate that the road to Folkman's vision of treating tumors still appears rocky and the solutions challenging. Moreover, Folkman's quest to understand how blood vessels develop is not limited to cancer treatment; manipulating angiogenesis may provides means to treat symptoms related to other common diseases such as diabetes, endometriosis, and heart disease.

In **Dr. Folkman's War**, science reporter Robert Cooke provides an engaging profile of Folkman's remarkable insightfulness, tenacity, and vision that played a critical role in establishing the field of angiogenesis. Further, Cooke provides a captivating view into the people and processes that drive a medical research team, as well as the scientific and economical challenges of transferring basic research knowledge from the lab bench to the bedside. Cooke wrote the book for a general audience, concentrating on the drama of Folkman's quest. While important experiments are consistently described throughout the book, discussion of the science is obviously simplified. Consequently, **Dr. Folkman's War** is easily accessible to readers with minimal background in biology and is particularly appropriate for students who wish to read the biography of a scientist and physician's professional career. Further, "Cancer Warrior," a 2001 NOVA episode profiling Dr. Folkman and his research team, interviews scientists, clinicians, and patients, reenacts several key experiments, and provides a useful classroom companion to Cook's biography. While **Dr. Folkman's War** was intended for a general audience, it is also an appropriate book for biology faculty and undergraduates in developmental, cellular, or molecular biology. By comparing this biography with primary research articles described in it, students can draw a more complete picture of the processes and outcomes of scientific inquiry. Even though the book does not include explicit citations of the research literature, Cooke describes many of the ground-breaking angiogenesis research papers (from both Folkman's lab and others) in sufficient detail to make journal articles easily identifiable by any student with access to medline. In summary, **Dr. Folkman's War** provides readers of all backgrounds with insight into the medical research process and an inspiring example of an innovative physician-scientist.

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BIOETHICS

Stem Cells and the Future of Regenerative Medicine. By the Committee on the Biological and Biomedical Applications of Stem Cell Research. 2002. National Academy Press (ISBN 0-309-07630-7). 112 pp. Paperback $19.95.

The story of Michael J. Fox is well known. A young Hollywood legend, his career is now sadly ended due to a chronic, debilitating, and what will ultimately be fatal, neurological disease–Parkinson's disease. Perhaps in the future his diagnosis might not be so grim.

A 16-year-old is shot through the heart with a nail gun. He suffers a massive heart attack and his only hope is a full heart transplant. However, a revolutionary technique injected cells from his bone marrow, miraculously growing working blood vessels and heart muscle, saving his life–without the devastating side effects of the transplant.

In fact there is new hope for people of many different diseases–including Parkinson's and heart disease, autoimmune diseases, diabetes, osteoporosis, cancers, Alzheimer's disease, burns, spinal-cord injuries, and birth defects–because of a new and controversial technology using stem cells.

Stem Cells examines the many issues relating to stem cells, explores benefits and moral dilemmas, and offers insight into how stem cell research should be conducted to provide the most benefits. It is written by the Committee on the Biological and Biomedical Applications of Stem Cell Research–formed from the National Research Council and the Institute of Medicine–composed of clinical and basic biomedical scientists who do not normally research stem cells (to avoid biases). They presented findings from stem cell scientists, philosophers, ethicists, and legal scholars. The Committee defines stem cells as "unspecialized cells that can self-renew indefinitely and that can also differentiate into more mature cells with specialized functions." (p. 1)

At first glance, it would seem that stem cells could be a perfect form of medicine–with potential to cure devastating disease with limited side effects. However, in our culture there are significant possible ethical situations that need to be debated. In fact, before the September 11th terrorist attacks, stem cells were hotly debated, with President Bush explaining his views in a prime time televised speech.

Stem Cells explains in detail the many different forms of stem cells–embryonic, fetal, and adult, and examines the techniques and previous research involved in their use. There are many stories of scientists and their work, which could easily be incorporated in a high school biology or anatomy course. The potential of these cells is exposed, as is our current limited understanding of them. Effective diagrams help relay this information in a clear and understandable manner.

One of the most interesting areas of embryonic stem cells relates to Somatic Cell Nuclear Transfer–creating embryonic stem cells the same way clones might be produced. However, instead of growing into adults, the embryos could be cultured to create perfect genetically matched donations. **Stem Cells** describes this potential but also gives a warning.

> "Cells created with this technique would overcome the problem of immune