

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

rejection. However, it might not be appropriate to transplant such cells in a person with a genetically based disease, since the cells would carry the same genetic information.” (p. 39)

However, most interesting is the section relating to opportunities and barriers to progress in stem cells. It examines moral dilemmas—most particularly, the use of embryos for their stem cells. While some people see their benefit to save lives, others see the embryo as a life that cannot be destroyed for any reason. **Stem Cells** examines the embryo in terms of different religions and different countries—with interesting insights into their perspectives.

Stem Cells also examines the various roles that the public and private sector should perform, with the public helping more with basic research and the private sector doing more applied, less regulated experiments.

The book ends with its findings—a chapter that could lead to some interesting debates among any science class. It lays out the need for human and animal studies to continue while using a variety of stem cells—including embryonic stem cells. It also explains that further discussions of this topic are necessary.

While the book is dry and written in a scientific manner, it is important information. There might not be a better place to discuss this topic than in a high school science class. The students will be making the decisions as to the future of this research for medicine. Before they can make an informed choice, they need to understand the evidence. **Stem Cells** can jump-start this learning process.



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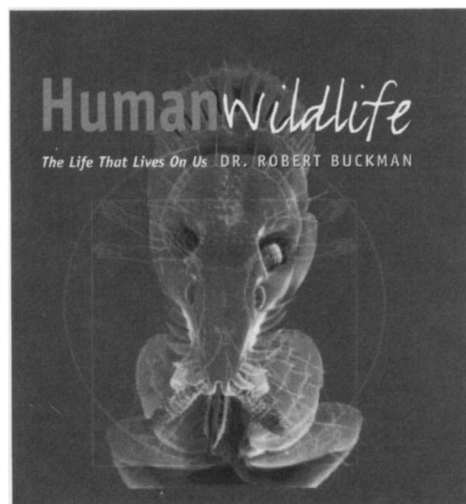
Human Wildlife

The Life That Lives on Us
Dr. Robert Buckman

“In *Human Wildlife*, Dr. Robert Buckman takes us on an engrossingly detailed journey through the hoards of organisms that thrive within, on, and uncomfortably close to our bodies. The voyage includes a mix of humorous text and astonishing photographs. From bedbugs to bacteria, the doctor reminds us that even when we think we are by ourselves, we are never alone.”

—Jeffrey C. May, author of
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