

Preface

Over the past two decades I have given talks and been on panels dealing with space medicine, suspended animation, medical nanotechnology, and similar topics at science fiction conventions. Audience members have often asked me where they could read more about these subjects that blend medicine with science fiction. Until now I could only tell them that information is scattered over numerous books, research papers, and other sources, with many of them written at a technical level not geared for a general readership. Some of those individuals have urged me to write a book covering those topics.

Using Medicine in Science Fiction is my response to that request. Its purpose is to describe how the human body actually works, the myriad ways that space travel, radiation exposure, and other factors affect it, and the biological challenges to modifying and “improving” it. Science fiction writers can use this information to make their depictions of human biology more accurate and plausible. Readers will gain a better understanding of the medical science underlying such commonly used plot elements as life extension, cloning, genetic engineering, and bionics.

The subjects I cover in this book are complex and vast. No single work can comprehensively include what is currently known about them, and new research will further expand our knowledge and capabilities. Instead each chapter focuses on presenting core concepts about human biology and medical care, summarizing the current status of individual topics (e.g. stem cells and organ transplantation), and describing what would need to be done to turn ideas now solely the provenance of science fiction into reality.

Science fiction does not need to be ultrarealistic in its portrayals of medical issues to be effective, enjoyable, and thought-provoking as fiction. Sometimes a little “blurring” of medical detail is, in fact, justified by the greater goal of making a story, television show, or movie succeed as a whole. A science fiction work can still triumph as an exercise in imagination, entertainment, and/or exploration of the human condition even if the medicine in it stretches plausibility to or beyond its breaking point.

But there is a danger with putting the priorities of fiction over those of science. A work depicting suspended animation, advanced genetic engineering,

or other medical elements well beyond current capabilities may give those unfamiliar with real medicine an erroneous impression of how “easy,” plausible, or even possible they are. This can do a disservice by inadvertently “teaching” its audience something that might be dubious at best or perhaps simply wrong.

While I hope you find the information in this book interesting and enlightening in its own right, it is also meant to serve another very important purpose. It will give you a better appreciation for how much of a difference there is between current medical science and that shown in science fiction. Sometimes the gap between them is small and might be bridged in the near future. In other cases there is a huge chasm that will require overcoming tremendous challenges, with no guarantee that they can be actually be done at all or at least used in a practical way. And it will also help you identify what medicine is “impossible” so that you can, if you choose, decide to suspend your disbelief to enjoy a science fiction work rather than learn something that is actually not correct.

In medicine as in life, it is best for each of us to know what is actually true. The second best thing, as Socrates knew, is to know that we really do not know something with certainty, and to try our best to understand and learn it. By far the worst situation is to “know” something is true when it really is not, or is at least less certain to be right or more complex than we think. Similarly, medical science must also continuously reevaluate what it “knows” based on new discoveries, facts, and concepts.

This book gives a snapshot of where many medical concepts used in science fiction are right now in their development. However, even the most informed speculation on when or whether they will eventually become real has an unavoidably wide margin of uncertainty. Fortunately, whatever path the future of medicine does take, we have science fiction to help imagine what it might be.



<http://www.springer.com/978-3-319-16014-6>

Using Medicine in Science Fiction
The SF Writer's Guide to Human Biology
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2016, XIV, 556 p., Softcover
ISBN: 978-3-319-16014-6