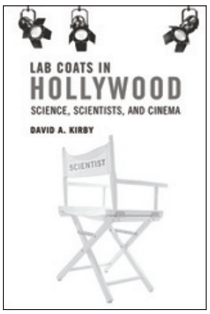
Big screen, big influence



Lab Coats in Hollywood: Science, Scientists, and Cinema

by David A. Kirby

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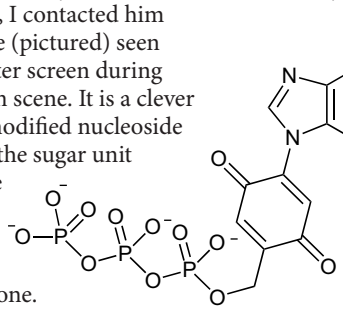
Among the dozens of scientists whose Hollywood advisory roles are described in David Kirby's illuminating book there is one consultant who influenced a chemical story. In the comedy *The Nutty Professor* (1996), Eddie Murphy stars as corpulent genetics professor Sherman Klump who develops a chemical–genetic cure for obesity. Molecular biologist Wayne Grody from the UCLA Department of Pathology was the science consultant for this fantasy blockbuster. He helped shape the set design (with help from his graduate students), computer visuals, dialogue and performances.

After learning about Grody's role in this film from Kirby's book, I contacted him to ask about a molecule (pictured) seen rotating on the computer screen during Klump's transformation scene. It is a clever choice because it is a modified nucleoside triphosphate in which the sugar unit (deoxyribose) from the naturally occurring deoxyadenosine triphosphate (dATP) is replaced with a quinone. This simple change would produce a redox active ATP analogue that just might be able to function in the ATP-dependent firefly luciferase reaction used in Klump's transformative formula (and would certainly muck up the DNA synthetic machinery in a way that could lead to a DNA mutation in Klump's fictional fat gene). Grody told me that he had provided a selection of annotated material from which the visual special effects team chose the one that ended up in the movie. In other words, there is a level of randomness to the collaboration that resulted in an excellent choice. Although Eddie Murphy's lovable character was obviously the big draw for viewers, the important message for scientists is that Grody was part of a team that ultimately reached millions of viewers.



Author David Kirby earned his PhD in molecular evolution at the University of Maryland but made the switch to the sociology of science during his postdoctoral research at Cornell University. In the subsequent decade, he has interviewed dozens of scientists and written about them in *Lab Coats in Hollywood* to "uncover science consultants' backstage role in entertainment production." He admirably provides several examples in which moviemakers made fantastic or uncertain science seem real and described how science consultants influence all levels of the moviemaking hierarchy.

In chapter 1, the driest and most theoretical chapter, Kirby maps out the process by which scientists use their life's knowledge about science, its social aspects and its methods to construct a "condensed scientific narrative" for moviemakers. The director, screenwriter and set designers choose how to translate selected parts of this information into a "cinematically manageable narrative" during production. One take-home message from Kirby's study is that dynamic and visually exciting sets are always preferred by moviemakers to dull but accurate facsimiles. This preference is driven by audience expectations. For science consultants (and for scientists who watch movies), this preference means accepting a somewhat clichéd image of science in the movies. After all, you always know someone is a chemist in the movies when they wear a white lab coat and are surrounded by bubbling apparatus. Kirby argues that entertainment professionals are correct in emphasizing the images because they actually improve the viewer's attitude towards science, which is a highly desirable outcome from the scientific perspective.

Throughout several other chapters, Kirby finds that the producers of entertainment media value scientific realism because they believe it results in larger box-office receipts. To achieve verisimilitude, they rely on willing scientists to provide them with insights. Many of these science consultants work for free even though their advice can shape the set designs, actor performances and the narrative to both a small and large degree. There is, however, a paradox that the earlier the scientist begins giving advice, the more influence he or she will have on the final product but the less likely they are to earn a large fee.

In chapter 7, the most thought-provoking and motivating chapter, Kirby gives several interesting examples in which scientists have influenced the final product so much that it promoted their own scientific ideas over their competitors. In some cases, it even increased the levels of funding in their research area. Such opportunities occur when the science is speculative (something doesn't exist now but nothing prevents it from existing in the future) or when it is fantastic (it could never happen). When dealing with fantastic science, advice is sought to develop "feasible fictions". One example is paleontologist Jack Horner, consultant to the Jurassic Park trilogy. Several of Horner's ideas that made it to these films include that dinosaurs are warm-blooded, communal, sophisticatedly vocal, nurture their young and share common descent with birds. When fans see how natural these things are in the movies, they believe they must be true. Besides generating popular support for Horner's scientifically contentious ideas, the Jurassic Park trilogy has had a much larger impact in that it caused many young people to consider careers in paleontology.

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Although Kirby's book is primarily about science consultants to big-budget blockbuster science fiction movies, it carries an important message for chemists. We need to reach out to entertainment producers so that more chemical concepts and imagery make their way into movies, television and games. Our unique chemical perspective of transformation and measurement is practically untapped in these media despite their obvious cinematic potential. If you want to reach millions with your chemical ideas, you must read Kirby's book to learn what you can accomplish by making some Hollywood friends. ❐

REVIEWED BY MARK GRIEP

Mark Griep is professor of chemistry at the University of Nebraska-Lincoln. He is also co-author with Marjorie Mikasen of ReAction! Chemistry in the Movies *(Oxford Univ. Press).*