

James B. Lewis, PhD

Independent Science Investigative Journalist

Contact

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Objective

Science writer for hire to describe for a wide range of audiences the science and technology that will transform human life over the next few decades.

Summary

My principal interest is nanotechnology as one component of the convergence of transformative technologies that also include biotechnology, artificial intelligence, information science, and cognitive science. My primary expertise is in biotechnology and nanotechnology, based upon a PhD in chemistry followed by 25 years doing research in molecular biology. During this period, I became interested in the emergence of nanotechnology, fascinated by its multidisciplinary nature, and impressed with the importance of communicating its implications to a wide audience. I have helped organize nanotechnology conferences, edited conference proceedings into books and web documents, written about developments in nanotechnology, and argued that nanotechnology has broad implications for the future. Whereas the early part of my career was narrowly focused on one area of molecular biology, my later work has developed broader familiarity with science and technology and more focus on writing for wider audiences.

Skills and Accomplishments

- A broad knowledge of science and technology.
- A deep knowledge of biotechnology and nanotechnology.
- An ability to delve into complex subjects, find and organize the most relevant and important information, and present it clearly. For example, I was led into nanotechnology from my knowledge of biochemistry and molecular biology, but soon increased my background knowledge of physics and material science.
- An ability to discern interrelationships in complex material. For example, after becoming interested in nanotechnology, I quickly recognized the importance of structural DNA nanotechnology, and as a result, in 1988 I invited Nadrian Seeman and his collaborator Bruce Robinson to speak at our 1989 NanoCon event.
- An ability to describe research to a range of audiences, from general to professional.

Professional Experience

1996-present. Working as an independent contractor writing about nanotechnology, mostly for the Foresight Institute, the leading think tank and public interest institute on nanotechnology.

1988-1996. Senior Research Investigator, Immunodeficiency and Immunosuppression Dept., Bristol-Myers Squibb Pharmaceutical Research Institute - Seattle, WA. Supervised a small group of two to five scientists working on HIV and cancer vaccines. Began writing about nanotechnology on my own time as a hobby.

1980-1988. Associate Member, Basic Sciences Division, Fred Hutchinson Cancer Research Center, Seattle, WA. Led a small research group studying various aspects of molecular biology of adenoviruses, with special emphasis on gene expression and oncogenic properties. Supported by several research grants, of which I was the principal investigator, from the National Institutes of Health, the National Science Foundation, and the American Cancer Society.

1974-1980. Staff Investigator and Senior Staff Investigator, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. Conducted basic research on the molecular biology of adenoviruses.

1973-1974. Postdoctoral Researcher, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY. Conducted basic research on the molecular biology of adenoviruses.

1971-1973. Postdoctoral Researcher, Swiss Institute for Experimental Cancer Research, Lausanne, Switzerland. Conducted basic research on the molecular biology of small DNA tumor viruses SV40 and polyoma.

Education

Ph.D., 1972, Harvard University, Cambridge, MA., Chemistry

M.A., 1968, Harvard University, Cambridge, MA., Chemistry

B.A., 1967, University of Pennsylvania, Philadelphia, PA., Chemistry

Professional Affiliations

AAAS (American Association for the Advancement of Science). Professional member since 1981.

ASM (American Society for Microbiology). Professional member since 1985.

ACS (American Chemical Society). Professional member since 1986.

ACM (Association for Computing Machinery). Member since 1997.

IEEE (originally the Institute of Electrical and Electronics Engineers). Member since 1997.

AVS (originally the American Vacuum Society). Member since 1997.

IOP (Institute of Physics). Member since 2005.

Publications and other writing

Writing on nanotechnology published on the Foresight Institute web site, 1997-2009

During 2007 I participated in a first attempt to map the developments needed to move from current capabilities in nanotechnology to advanced systems. [*Productive Nanosystems: A Technology Roadmap*](#) was developed by Foresight Institute and Battelle,

with initial funding from the Waitt Family Foundation. I wrote two papers for the [Working Group Proceedings](#) (210 pages, 14.6 MB PDF) part of the roadmap: "Nucleic Acid Engineering" J. Lewis, pages 07-1 to 07-7 and "DNA as an Aid to Self-Assembly" J. Lewis, pages 08-1 to 08-9.

Links to about five dozen of the hundreds of pieces that I wrote on Nanotechnology for the Foresight Institute are available at:

<http://www.halcyon.com/nanojbl/JBL/index.html>

Other writing related to nanotechnology, 1988-1992

In 1988 I was asked to provide a letter of support for the reasonableness of cryonic preservation of those legally deceased. My letter [<http://www.halcyon.com/nanojbl/cryonics.html>] was submitted in support of the [Alcor Life Extension Foundation](#) in the [Dora Kent case](#).

John L. Quel and I organized a conference that was held in Seattle in 1989 and focused on nanotechnology and "the effects that these advanced technologies might have on society over the next 30 - 50 years". We transcribed and edited the conference proceedings and made it available, first for purchase, and then for free on the Internet. *The NanoCon Proceedings* are available at <http://www.halcyon.com/nanojbl/NanoConProc/nanocon1.html>.

I co-edited two books that resulted from nanotechnology conferences sponsored by the Foresight Institute:

- *Nanotechnology: Research and Perspectives*. Edited by BC Crandall and James Lewis. The MIT Press. 1992. This book contains papers from the [First Foresight Conference on Nanotechnology](#), held in October of 1989.
- *Prospects in Nanotechnology: Toward Molecular Manufacturing*. Edited by Markus Krummenacker and James Lewis. John Wiley & Sons, Inc. 1995. This book contains papers from the [First General Conference on Nanotechnology: Development, Applications, and Opportunities](#), held in November of 1992.

Research publications, 1970-1993

A complete list of my research publications covering the period 1970-1993 is available at <http://www.halcyon.com/nanojbl/JBLBio.html>. These publications included papers published in *Nature*, *Biochemistry*, *Proc. Nat. Acad. Sci. USA*, *J. Biol. Chem.*, *Cell*, *J. Virol.*, and *J. Mol. Biol.*.

