

## SUGGESTED READINGS FOR NON-PROFESSIONALS

These are included to assist the non-specialist reader in finding independent discussions of the topics raised in this book. Most articles are taken from *Scientific American* post-1948 issues, which have recently been made available online as a consequence of the magazine's purchase by Nature Publishing Group. The majority of the articles cited may not directly address points made in the text, but they are included because they provide important context and background. Many of the more recent articles explicitly or implicitly exemplify the contemporary cognitive and informatic perspective advocated in the book. For specialized terms that are unfamiliar, the reader is advised to consult Wikipedia.

- *Scientific American* articles can be accessed from the archive at <http://www.nature.com/scientificamerican/archive/index.html>
- Stephen J. Gould's articles on evolution are available at <http://www.stephenjaygould.org/>
- Complete works of Darwin available at <http://darwin-online.org.uk/> .

## INTRODUCTION READINGS

### The traditional perspective:

- UC Berkeley Museum Paleontology website, History of Evolutionary Thought (<http://www.ucmp.berkeley.edu/history/evothought.html> )
- **Origin of Species**, Chapter 4 (<http://darwin-online.org.uk/>)
- **Maupertuis, a Forgotten Genius** H. Bentley Glass  
Scientific American 193, 100-111 (October 1955) doi:10.1038/scientificamerican1055-100
- **The Origin of Darwinism** C. D. Darlington  
Scientific American 200, 60-66 (May 1959) doi:10.1038/scientificamerican0559-60
- **Evolution** Ernst Mayr  
Scientific American 239, 46-55 (September 1978) doi:10.1038/scientificamerican0978-46
- **The Neutral Theory of Molecular Evolution** Motoo Kimura  
Scientific American 241, 98-126 (November 1979) doi:10.1038/scientificamerican1179-98
- **The Lunar Society of Birmingham** Lord Ritchie-Calder  
Scientific American 246, 136-145 (June 1982) doi:10.1038/scientificamerican0682-136
- **The Evolution of Darwinism** G. Ledyard Stebbins, Francisco J. Ayala  
Scientific American 253, 72-82 (July 1985) doi:10.1038/scientificamerican0785-72
- **Archaeopteryx** Peter Wellnhofer  
Scientific American 262, 70-77 (May 1990) doi:10.1038/scientificamerican0590-70

- [\*\*The Genes of Men and Molds\*\*](#) **George W. Beadle**  
Scientific American 179, 30-39 (September 1948) doi:10.1038/scientificamerican0948-30
- [\*\*The Genetic Basis of Evolution\*\*](#) **Theodosius Dobzhansky**  
Scientific American 182, 32-41 (January 1950) doi:10.1038/scientificamerican0150-32
- [\*\*Genetics\*\*](#) **Theodosius Dobzhansky**  
Scientific American 183, 55-58 (September 1950) doi:10.1038/scientificamerican0950-55
- [\*\*Evolution Observed\*\*](#) **Francis J. Ryan**  
Scientific American 189, 78-82 (October 1953) doi:10.1038/scientificamerican1053-78
- [\*\*The Structure of the Hereditary Material\*\*](#) **F. H. C. Crick**  
Scientific American 191, 54-61 (October 1954) doi:10.1038/scientificamerican1054-54
- [\*\*Information Transfer in the Living Cell\*\*](#) **George Gamow**  
Scientific American 193, 70-78 (October 1955) doi:10.1038/scientificamerican1055-70
- [\*\*The Gene\*\*](#) **Norman H. Horowitz**  
Scientific American 195, 78-91 (October 1956) doi:10.1038/scientificamerican1056-78
- [\*\*Nucleic Acids\*\*](#) **F. H. C. Crick**  
Scientific American 197, 188-203 (September 1957) doi:10.1038/scientificamerican0957-188
- [\*\*How do Genes Act?\*\*](#) **Vernon M. Ingram**  
Scientific American 198, 68-74 (January 1958) doi:10.1038/scientificamerican0158-68
- [\*\*Innovation in Biology\*\*](#) **George Wald**  
Scientific American 199, 100-115 (September 1958) doi:10.1038/scientificamerican0958-100
- [\*\*The Genetic Code\*\*](#) **F. H. C. Crick**  
Scientific American 207, 66-77 (October 1962) doi:10.1038/scientificamerican1062-66
- [\*\*Ionizing Radiation and Evolution\*\*](#) **James F. Crow**  
Scientific American 201, 138-160 (September 1959) doi:10.1038/scientificamerican0959-138
- [\*\*The Genetic Code: II\*\*](#) **Marshall W. Nirenberg**  
Scientific American 208, 80-95 (March 1963) doi:10.1038/scientificamerican0363-80
- [\*\*The Genetic Code: III\*\*](#) **F. H. C. Crick**  
Scientific American 215, 55-62 (October 1966) doi:10.1038/scientificamerican1066-55
- [\*\*Evolution\*\*](#) **Ernst Mayr**  
Scientific American 239, 46-55 (September 1978) doi:10.1038/scientificamerican0978-46
- [\*\*The Evolution of Multicellular Plants and Animals\*\*](#) **James W. Valentine**  
Scientific American 239, 140-158 (September 1978) doi:10.1038/scientificamerican0978-140
- [\*\*An Early Habitat of Life\*\*](#) **David I. Groves, John S. R. Dunlop, Roger Buick**  
Scientific American 245, 64-73 (October 1981) doi:10.1038/scientificamerican1081-64
- [\*\*The Molecular Basis of Evolution\*\*](#) **Allan C. Wilson**  
Scientific American 253, 164-173 (October 1985) doi:10.1038/scientificamerican1085-164

- **[The Emergence of Animals](#)** Mark A. S. McMenamin  
Scientific American 256, 94-102 (April 1987) doi:10.1038/scientificamerican0487-94
- **[From Atoms to Traits](#)** David M. Kingsley  
Scientific American 300, 52-59 (January 2009) doi:10.1038/scientificamerican0109-52
- **[Evolution Encoded](#)** Stephen J. Freeland, Laurence D. Hurst  
Scientific American 290, 84-91 (April 2004) doi:10.1038/scientificamerican0404-84

### Heredity outside the genome:

- **[Partner of the Genes](#)** T. M. Sonneborn  
Scientific American 183, 30-39 (November 1950) doi:10.1038/scientificamerican1150-30  
<http://www.nature.com/scientificamerican/journal/v183/n5/pdf/scientificamerican1150-30.pdf>
- **[Prions](#)** Stanley B. Prusiner  
Scientific American 251, 50-59 (October 1984) doi:10.1038/scientificamerican1084-50

### New conceptual approaches:

- **[Cybernetics](#)** Norbert Wiener  
Scientific American 179, 14-19 (November 1948) doi:10.1038/scientificamerican1148-14
- **[How Cells Respond to Stress](#)** William J. Welch  
Scientific American 268, 56-64 (May 1993) doi:10.1038/scientificamerican0593-56
- **Shapiro, J.A.** 1997. **A third way (alternative to Darwinism & Creationism)**. *Boston Review* 22 (1), 32-33. ([www.bostonreview.net/BR22.1/shapiro.html](http://www.bostonreview.net/BR22.1/shapiro.html) )
- **[Swarm Smarts](#)** Eric Bonabeau, Guy Théraulaz  
Scientific American 282, 72-79 (March 2000) doi:10.1038/scientificamerican0300-72
- **[Swarm Smarts](#)** Eric Bonabeau, Guy Théraulaz  
Scientific American 18, 40-47 (February 2008) doi:10.1038/scientificamerican0208-40sp
- **[Protein-Based Computers](#)** Robert R. Birge  
Scientific American 272, 90-95 (March 1995) doi:10.1038/scientificamerican0395-90
- **[Computing with Molecules](#)** Mark A. Reed, James M. Tour  
Scientific American 282, 86-93 (June 2000) doi:10.1038/scientificamerican0600-86
- **[Cybernetic Cells](#)** W. Wayt Gibbs  
Scientific American 285, 52-57 (August 2001) doi:10.1038/scientificamerican0801-52
- **[Engineering Life: Building a FAB for Biology](#)** David Baker, George Church, Jim Collins, Drew Endy, Joseph Jacobson, Jay Keasling, Paul Modrich, Christina Smolke, Ron Weiss  
Scientific American 294, 44-51 (June 2006) doi:10.1038/scientificamerican0606-44

- [Machine Self-awareness](#) **Larry Greenemeier**  
Scientific American 302, 44-45 (June 2010) doi:10.1038/scientificamerican0610-44

## PART I READINGS

### How *E. coli* chooses the best sugar to eat:

- [Viruses and Genes](#) **François Jacob, Elie L. Wollman**  
Scientific American 204, 92-110 (June 1961) doi:10.1038/scientificamerican0661-92
- [The Control of Biochemical Reactions](#) **Jean-Pierre Changeux**  
Scientific American 212, 36-45 (April 1965) doi:10.1038/scientificamerican0465-36  
(Allosteric interactions)
- [Protein Shape and Biological Control](#) **Daniel E. Koshland**  
Scientific American 229, 52-64 (October 1973) doi:10.1038/scientificamerican1073-52  
(Allosteric interactions)
- [Genetic Repressors](#) **Mark Ptashne, Walter Gilbert**  
Scientific American 222, 36-44 (June 1970) doi:10.1038/scientificamerican0670-36
- [“Second Messengers” in the Brain](#) **James A. Nathanson, Paul Greengard**  
Scientific American 237, 108-119 (August 1977) doi:10.1038/scientificamerican0877-108
- [The Cycling of Calcium as an Intracellular Messenger](#) **Howard Rasmussen**  
Scientific American 261, 66-73 (October 1989) doi:10.1038/scientificamerican1089-66
- [Biological Roles of Nitric Oxide](#) **Solomon H. Snyder, David S. Brett**  
Scientific American 266, 68-77 (May 1992) doi:10.1038/scientificamerican0592-68

### Proofreading DNA replication:

- [The High Fidelity of DNA Duplication](#) **Miroslav Radman, Robert Wagner**  
Scientific American 259, 40-46 (August 1988) doi:10.1038/scientificamerican0888-40
- [Fuzzy Logic](#) **Bart Kosko, Satoru Isaka**  
Scientific American 269, 76-81 (July 1993) doi:10.1038/scientificamerican0793-76

### DNA damage repair and mutagenesis:

- [Ionizing Radiation and the Living Cell](#) **Alexander Hollaender, George E. Stapleton**  
Scientific American 201, 94-100 (September 1959) doi:10.1038/scientificamerican0959-94
- [Ultraviolet Radiation and Nucleic Acid](#) **R. A. Deering**  
Scientific American 207, 135-145 (December 1962) doi:10.1038/scientificamerican1262-135

- **[The Repair of DNA](#)** Philip C. Hanawalt, Robert H. Haynes  
Scientific American 216, 36-43 (February 1967) doi:10.1038/scientificamerican0267-36
- **[Bacterial Tests for Potential Carcinogens](#)** Raymond Devoret  
Scientific American 241, 40-49 (August 1979) doi:10.1038/scientificamerican0879-40
- **[Inducible Repair of DNA](#)** Paul Howard-Flanders  
Scientific American 245, 72-80 (November 1981) doi:10.1038/scientificamerican1181-72
- **[Sunlight and Skin Cancer](#)** David J. Leffell, Douglas E. Brash  
Scientific American 275, 52-59 (July 1996) doi:10.1038/scientificamerican0796-52

### Cell cycle checkpoints:

- **[What Controls the Cell Cycle](#)** Andrew W. Murray, Marc W. Kirschner  
Scientific American 264, 56-63 (March 1991) doi:10.1038/scientificamerican0391-56
- **[How Cancer Arises](#)** Robert A. Weinberg  
Scientific American 275, 62-70 (September 1996) doi:10.1038/scientificamerican0996-62

### From the cell surface to the genome:

- **[How Cells Receive Stimuli](#)** William H. Miller, Floyd Ratliff, H. K. Hartline  
Scientific American 205, 222-239 (September 1961) doi:10.1038/scientificamerican0961-222
- **[Pheromones](#)** Edward O. Wilson  
Scientific American 208, 100-114 (May 1963) doi:10.1038/scientificamerican0563-100
- **[Sex Differences in Cells](#)** Ursula Mittwoch  
Scientific American 209, 54-63 (July 1963) doi:10.1038/scientificamerican0763-54
- **[How Slime Molds Communicate](#)** John Tyler Bonner  
Scientific American 209, 84-93 (August 1963) doi:10.1038/scientificamerican0863-84
- **[The Molecular Basis of Communication within the Cell](#)** Michael J. Berridge  
Scientific American 253, 142-152 (October 1985) doi:10.1038/scientificamerican1085-142
- **[Cell Communication: The Inside Story](#)** John D. Scott, Tony Pawson  
Scientific American 282, 72-79 (June 2000) doi:10.1038/scientificamerican0600-72

### The role of intercellular signals in the cell death decision:

- **[How Cancer Arises](#)** Robert A. Weinberg  
Scientific American 275, 62-70 (September 1996) doi:10.1038/scientificamerican0996-62
- **[Cell Suicide in Health and Disease](#)** Richard C. Duke, David M. Ojcius, John Ding-E Young  
Scientific American 275, 80-87 (December 1996) doi:10.1038/scientificamerican1296-80  
(apoptosis)

## Revisiting the central dogma of molecular biology:

- **Crick F: Central dogma of molecular biology.** *Nature* 1970, 227:561-563.  
<http://www.nature.com/nature/journal/v227/n5258/abs/227561a0.html>
- **Collective Computation in Neuronlike Circuits** David W. Tank, John J. Hopfield  
*Scientific American* 257, 104-114 (December 1987) doi:10.1038/scientificamerican1287-104
- **Scale-Free Networks** Albert-László Barabási, Eric Bonabeau  
*Scientific American* 288, 60-69 (May 2003) doi:10.1038/scientificamerican0503-60
- **At the Edge of Life's Code** Thania Benios  
*Scientific American* 298, 106-109 (April 2008) doi:10.1038/scientificamerican0408-106  
(Chris Wiggins and computational modeling of cell responses)

## PART II READINGS

### Genome formatting for properly accessing stored information:

- **Transcription, translation and other cell process videos**  
<http://sciencevideos.wordpress.com/2010/02/27/transcription-and-translation-ahl/>
- **A DNA Operator-Repressor System** Tom Maniatis, Mark Ptashne  
*Scientific American* 234, 64-76 (January 1976) doi:10.1038/scientificamerican0176-64
- **A Genetic Switch in a Bacterial Virus** Mark Ptashne, Alexander D. Johnson, Carl O. Pabo  
*Scientific American* 247, 128-141 (November 1982) doi:10.1038/scientificamerican1182-128
- **Split Genes** Pierre Chambon  
*Scientific American* 244, 60-71 (May 1981) doi:10.1038/scientificamerican0581-60
- **Light Switches for Plant Genes** Phyllis B. Moses, Nam-Hai Chua  
*Scientific American* 258, 88-93 (April 1988) doi:10.1038/scientificamerican0488-88
- **How Gene Activators Work** Mark Ptashne  
*Scientific American* 260, 40-47 (January 1989) doi:10.1038/scientificamerican0189-40
- **Smart Genes** Tim Beardsley  
*Scientific American* 265, 86-95 (August 1991) doi:10.1038/scientificamerican0891-86
- **Molecular Machines that Control Genes** Robert Tjian  
*Scientific American* 272, 54-61 (February 1995) doi:10.1038/scientificamerican0295-54

- **The Alternative Genome** Gil Ast

Scientific American 292, 58-65 (April 2005) doi:10.1038/scientificamerican0405-58  
(multiple proteins from a single genetic locus)

- **The Power of Riboswitches** Jeffrey E. Barrick, Ronald R. Breaker

Scientific American 296, 50-57 (January 2007) doi:10.1038/scientificamerican0107-50

- **Natalie Angier: Scientists and Philosophers Find That ‘Gene’ Has a Multitude of Meanings.** NYTimes. November 11, 2008.

[http://www.nytimes.com/2008/11/11/science/11angi.html?\\_r=3&sq=RNA%20genes&st=cse&scp=2&page\\_wanted=print](http://www.nytimes.com/2008/11/11/science/11angi.html?_r=3&sq=RNA%20genes&st=cse&scp=2&page_wanted=print)

- **Nicholas Wade. From One Genome, Many Types of Cells. But How?** NYT February 24, 2009,

[http://www.nytimes.com/2009/02/24/science/24chromatin.html?pagewanted=1&\\_r=2&ref=science](http://www.nytimes.com/2009/02/24/science/24chromatin.html?pagewanted=1&_r=2&ref=science)

- **Nuclear Architecture** Melinda Wenner

Scientific American 301, 20-22 (October 2009) doi:10.1038/scientificamerican1009-20  
(importance of nuclear localization)

**The Inner Life of the Genome** Tom Misteli Scientific American 304, 66-73 (18 January 2011)  
doi:10.1038/scientificamerican0211-66 (nuclear organization)

## Genome compaction, chromatin formatting, and epigenetic regulation:

- **How do Cells Differentiate?** C. H. Waddington

Scientific American 189, 108-116 (September 1953) doi:10.1038/scientificamerican0953-108

- **Experiments in Acquired Characteristics** C. H. Waddington

Scientific American 189, 92-99 (December 1953) doi:10.1038/scientificamerican1253-92

- **Chromosomal Proteins and Gene Regulation** Gary S. Stein, Janet Swinehart Stein, Lewis J. Kleinsmith Scientific American 232, 46-60 (February 1975)

doi:10.1038/scientificamerican0275-46

- **The Nucleosome** Roger D. Kornberg, Aaron Klug

Scientific American 244, 52-64 (February 1981) doi:10.1038/scientificamerican0281-52

- **A Different Kind of Inheritance** Robin Holliday

Scientific American 260, 60-73 (June 1989) doi:10.1038/scientificamerican0689-60

- **Parental Imprinting of Genes** Carmen Sapienza

Scientific American 263, 52-60 (October 1990) doi:10.1038/scientificamerican1090-52

- **Histones as Regulators of Genes** Michael Grunstein

Scientific American 267, 68-74 (October 1992) doi:10.1038/scientificamerican1092-68

- **Censors of the Genome** Nelson C. Lau, David P. Bartel

Scientific American 289, 34-41 (August 2003) doi:10.1038/scientificamerican0803-34  
(RNAi)

- **[The Hidden Genetic Program of Complex Organisms](#)** John S. Mattick  
Scientific American 291, 60-67 (October 2004) doi:10.1038/scientificamerican1004-60  
(regulatory RNAs)
- **[The Unseen Genome: Beyond DNA](#)** W. Wayt Gibbs  
Scientific American 289, 106-113 (December 2003) doi:10.1038/scientificamerican1203-106  
(epigenetics)
- **David Shenk.** 7/23/2009. **How Genes Really Work.** The Atlantic. (epigenetics commentary)  
[http://correspondents.theatlantic.com/david\\_shenk/2009/07/how\\_genes\\_really\\_work.php](http://correspondents.theatlantic.com/david_shenk/2009/07/how_genes_really_work.php)

## Genome formatting for replication and transmission to daughter cells:

- **Mitosis videos:** <http://sciencevideos.wordpress.com/2007/09/24/the-cell-cycle-mitosis/>
- **[Cell Division](#)** Daniel Mazia  
Scientific American 189, 53-63 (August 1953) doi:10.1038/scientificamerican0853-53
- **[The Cell Cycle](#)** Daniel Mazia  
Scientific American 230, 54-64 (January 1974) doi:10.1038/scientificamerican0174-54 Article
- **[How Cells Divide](#)** Daniel Mazia  
Scientific American 205, 100-121 (September 1961) doi:10.1038/scientificamerican0961-100
- **[Artificial Chromosomes](#)** Andrew W. Murray, Jack W. Szostak  
Scientific American 257, 62-68 (November 1987) doi:10.1038/scientificamerican1187-62
- **[The Mitotic Spindle](#)** J. Richard McIntosh, Kent L. McDonald  
Scientific American 261, 48-56 (October 1989) doi:10.1038/scientificamerican1089-48
- **[The Human Telomere](#)** Robert K. Moyzis  
Scientific American 265, 48-55 (August 1991) doi:10.1038/scientificamerican0891-48
- **[The Centrosome](#)** David M. Glover, Cayetano Gonzalez, Jordan W. Raff  
Scientific American 268, 62-68 (June 1993) doi:10.1038/scientificamerican0693-62
- **[Telomeres, Telomerase and Cancer](#)** Carol W. Greider, Elizabeth H. Blackburn  
Scientific American 274, 92-97 (February 1996) doi:10.1038/scientificamerican0296-92

## Distinct classes of DNA in the genome:

- **[Repeated Segments of DNA](#)** Roy J. Britten, David E. Kohne  
Scientific American 222, 24-31 (April 1970) doi:10.1038/scientificamerican0470-24
- **[DNA Microsatellites: Agents of Evolution?](#)** E. Richard Moxon, Christopher Wills  
Scientific American 280, 94-99 (January 1999) doi:10.1038/scientificamerican0199-94
- **Olivia Judson blog:** <http://opinionator.blogs.nytimes.com/2008/04/01/a-random-analysis/>
- **[The Unseen Genome: Gems among the Junk](#)** W. Wayt Gibbs  
Scientific American 289, 46-53 (November 2003) doi:10.1038/scientificamerican1103-46



(importance of “non-coding” DNA)

### **The molecular mechanisms of natural genetic engineering:**

- **[A Versatile Virus](#)** Karl Maramorosch  
Scientific American 188, 78-86 (June 1953) doi:10.1038/scientificamerican0653-78  
– virus multiplies in plant and in insect vector
- **[Friendly Viruses](#)** Karl Maramorosch  
Scientific American 203, 138-144 (August 1960) doi:10.1038/scientificamerican0860-138
- **[The Life Cycle of a Virus](#)** André Lwoff  
Scientific American 190, 34-37 (March 1954) doi:10.1038/scientificamerican0354-34
- **[How Viruses Insert their DNA into the DNA of the Host Cell](#)** Allan M. Campbell  
Scientific American 235, 102-113 (December 1976) doi:10.1038/scientificamerican1276-102
- **[RNA-Directed DNA Synthesis](#)** Howard M. Temin  
Scientific American 226, 24-33 (January 1972) doi:10.1038/scientificamerican0172-24
- **[Transposable Genetic Elements](#)** Stanley N. Cohen, James A. Shapiro  
Scientific American 242, 40-49 (February 1980) doi:10.1038/scientificamerican0280-40
- **[How an Animal Virus Gets into and out of its Host Cell](#)** Kai Simons, Henrik Garoff, Ari Helenius  
Scientific American 246, 58-66 (February 1982) doi:10.1038/scientificamerican0282-58
- **[Transposable Genetic Elements in Maize](#)** Nina V. Fedoroff  
Scientific American 250, 84-99 (June 1984) doi:10.1038/scientificamerican0684-84
- **[Reverse Transcription](#)** Harold Varmus  
Scientific American 257, 56-64 (September 1987) doi:10.1038/scientificamerican0987-56
- **[Are Viruses Alive?](#)** Luis P. Villarreal  
Scientific American 291, 100-105 (December 2004) doi:10.1038/scientificamerican1204-100
- **[The Real Life of Pseudogenes](#)** Mark Gerstein, Deyou Zheng  
Scientific American 295, 48-55 (August 2006) doi:10.1038/scientificamerican0806-48
- **[Ancient Gene, New Tricks](#)** Christine Soares  
Scientific American 299, 24-26 (July 2008) doi:10.1038/scientificamerican0708-24  
(resurrected transposon as transgenic vector)

### **Natural genetic engineering as part of the normal life-cycle:**

- **[How the Trypanosome Changes its Coat](#)** John E. Donelson, Mervyn J. Turner  
Scientific American 252, 44-51 (February 1985) doi:10.1038/scientificamerican0285-44
- **[Genetic Recombination](#)** Franklin W. Stahl  
Scientific American 256, 90-101 (February 1987) doi:10.1038/scientificamerican0287-90

**Ciliate macronucleus development:**

- **Olivia Judson blog on genome change: “Unorthodox”**

<http://opinionator.blogs.nytimes.com/2010/02/09/unorthodox/> (ciliates)

*ScienceDaily* (May 21, 2009) '**Junk' DNA Has Important Role, Researchers Find.**

<http://www.sciencedaily.com/releases/2009/05/090520140408.htm>

**Developmental, cell, and molecular biology of the adaptive immune system:**

- **[How Antibodies are Made](#)** Sir Macfarlane Burnet

Scientific American 191, 74-78 (November 1954) doi:10.1038/scientificamerican1154-74

- **[The Specificity of Antibodies](#)** S. J. Singer

Scientific American 197, 99-107 (October 1957) doi:10.1038/scientificamerican1057-99

- **[The Mechanism of Immunity](#)** Sir Macfarlane Burnet

Scientific American 204, 58-67 (January 1961) doi:10.1038/scientificamerican0161-58

- **[The Thymus Gland](#)** Sir Macfarlane Burnet

Scientific American 207, 50-57 (November 1962) doi:10.1038/scientificamerican1162-50

- **[How Cells Attack Antigens](#)** Robert S. Speirs

Scientific American 210, 58-64 (February 1964) doi:10.1038/scientificamerican0264-58

- **[How Cells Make Antibodies](#)** G. J. V. Nossal

Scientific American 211, 106-115 (December 1964) doi:10.1038/scientificamerican1264-106

- **[The Structure of Antibodies](#)** R. R. Porter

Scientific American 217, 81-90 (October 1967) doi:10.1038/scientificamerican1067-81

- **[The Structure and Function of Antibodies](#)** Gerald M. Edelman

Scientific American 223, 34-42 (August 1970) doi:10.1038/scientificamerican0870-34

- **[The Immune System](#)** Niels Kaj Jerne

Scientific American 229, 52-60 (July 1973) doi:10.1038/scientificamerican0773-52

- **[The Complement System](#)** Manfred M. Mayer

Scientific American 229, 54-66 (November 1973) doi:10.1038/scientificamerican1173-54

- **[The Development of the Immune System](#)** Max D. Cooper, Alexander R. Lawton

Scientific American 231, 58-72 (November 1974) doi:10.1038/scientificamerican1174-58

- **[The Antibody Combining Site](#)** J. Donald Capra, Allen B. Edmundson

Scientific American 236, 50-59 (January 1977) doi:10.1038/scientificamerican0177-50

- **[Monoclonal Antibodies](#)** Cesar Milstein

Scientific American 243, 66-75 (October 1980) doi:10.1038/scientificamerican1080-66

- **[The Genetics of Antibody Diversity](#)** Philip Leder  
Scientific American 246, 102-115 (May 1982) doi:10.1038/scientificamerican0582-102
- **[The Molecules of the Immune System](#)** Susumu Tonegawa  
Scientific American 253, 122-131 (October 1985) doi:10.1038/scientificamerican1085-122
- **[The T Cell and its Receptor](#)** Philippa Marrack, John Kappler  
Scientific American 254, 36-45 (February 1986) doi:10.1038/scientificamerican0286-36
- **[Anti-Idiotypes and Immunity](#)** Ronald C. Kennedy, Joseph L. Melnick, Gordon R. Dreesman  
Scientific American 255, 48-56 (July 1986) doi:10.1038/scientificamerican0786-48
- **[The Clonal-Selection Theory](#)** Gordon L. Ada, Sir Gustav Nossal  
Scientific American 257, 62-69 (August 1987) doi:10.1038/scientificamerican0887-62
- **[Catalytic Antibodies](#)** Richard A. Lerner, Alfonso Tramontano  
Scientific American 258, 58-70 (March 1988) doi:10.1038/scientificamerican0388-58
- **[How T Cells see Antigen](#)** Howard M. Grey, Alessandro Sette, Søren Buus  
Scientific American 261, 56-64 (November 1989) doi:10.1038/scientificamerican1189-56
- **[Life, Death and the Immune System](#)** Gustav J. V. Nossal  
Scientific American 269, 52-62 (September 1993) doi:10.1038/scientificamerican0993-52
- **[How the Immune System Develops](#)** Irving L. Weissman, Max D. Cooper  
Scientific American 269, 64-71 (September 1993) doi:10.1038/scientificamerican0993-64
- **[Sharks and the Origins of Vertebrate Immunity](#)** Gary W. Litman  
Scientific American 275, 67-71 (November 1996) doi:10.1038/scientificamerican1196-67
- **[Immunity and the Invertebrates](#)** Gregory Beck, Gail S. Habicht  
Scientific American 275, 60-66 (November 1996) doi:10.1038/scientificamerican1196-60
- **[The Long Arm of the Immune System](#)** Jacques Banchereau  
Scientific American 287, 52-59 (November 2002) doi:10.1038/scientificamerican1102-52
- **[Immunity's Early-Warning System](#)** Luke A. J. O'Neill  
Scientific American 292, 38-45 (January 2005) doi:10.1038/scientificamerican0105-38
- **[Peacekeepers of the Immune System](#)** Zoltan Fehervari, Shimon Sakaguchi  
Scientific American 295, 56-63 (October 2006) doi:10.1038/scientificamerican1006-56

## Cellular regulation of natural genetic engineering:

- **[Hungry to Evolve?](#)** John Rennie  
Scientific American 261, 20-22 (November 1989) doi:10.1038/scientificamerican1189-20b  
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