

AIDS

Denialism vs. Science

AIDS denialists believe, with a faith unshakable by fact, that HIV does not cause AIDS and that antiretrovirals should not be used for HIV prevention or treatment. Their misrepresentations and pseudoscientific views have cost lives in South Africa and elsewhere.

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Acquired immunodeficiency syndrome (AIDS) has killed more than twenty-five million people and remains a major threat to humankind (UNAIDS 2006). The human immunodeficiency virus (HIV) causes AIDS by undermining the immune system, eventually resulting in death (Simon et al. 2006). Although no cure has been discovered, scientific advances have resulted in the development of antiretroviral drugs (ARVs) to prevent mother-to-child transmission of HIV (Brocklehurst 2006) and to extend the lives of AIDS patients (Smit et al. 2006). HIV has been isolated and photographed, and its genome has been fully described. Yet a group of AIDS denialists in Australia (the so-called Perth Group) insists



Peter Duesberg, prominent (and notorious) AIDS denier (Photo by Robert Holmgren/ZUMA Press. © 2003 by Robert Holmgren [Photo via Newscom])

that HIV does not exist—recently testifying to this effect in an Australian court in defense of Andre Parenzee, an HIV-positive man charged with having unprotected sex with several women and infecting one of them with HIV. Other AIDS denialists accept the existence of HIV but, following Peter Duesberg (a molecular biologist at the University of California), believe it to be harmless. What unites them all is the unshakable belief that the existing canon of AIDS science is wrong and that AIDS deaths are caused by malnutrition, narcotics, and ARV drugs themselves.

AIDS denialists are eccentric but not irrelevant, because they campaign actively against the use of ARVs and promote the dangerous view that HIV is harmless (and some say not even sexually transmitted). South African president Thabo



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Mbeki took the AIDS denialists so seriously that he delayed the introduction of ARVs to prevent mother-to-child transmission of HIV and invited the leading AIDS denialists to serve on his “Presidential AIDS Advisory Panel” (Natrass 2007). They recommended that ARVs be avoided and that all forms of immune deficiency be treated with vitamins and “alternative”

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and “complementary” therapies including “massage therapy, music therapy, yoga, spiritual care, homeopathy, Indian ayurvedic medicine, light therapy and many other methods” (PAAP 2001, 79, 86).

This leap—from the critique of mainstream biomedical science on AIDS to the promotion of unproven and unregulated alternative therapies—is a replay of the classic quack-marketing strategy of promoting belief in alternative remedies by sowing disbelief and skepticism about the medical establishment (Hurley 2006, 216). It is thus not surprising that AIDS denialism has been used by vitamin salesmen (notably the Dr. Rath Health Foundation), self-styled alternative healers, and some traditional healers to promote their worldviews and products (Natrass 2007). One of South Africa’s current health-policy failings is that, instead of cracking down on those making unsubstantiated health claims and creating markets for their wares, the health minister (Manto Tshabalala-Msimang) has provided cover and support for them.

AIDS denialists downplay their links with the purveyors of alternative therapies, preferring instead to characterize themselves as brave “dissidents” attempting to engage a hostile medical/industrial establishment in genuine scientific “debate.” They complain that their attempts to raise questions and pose alternative hypotheses have been unjustly rejected or ignored at the cost of scientific progress itself.

Dissent and critique are, of course, central to science, but so, too, is respect for evidence and peer review. While it was intellectually respectable to dissent diametrically from mainstream views in the early days of AIDS science when relatively little was known about AIDS pathogenesis, this is no longer the case. In the 1980s, it was understandable that AIDS dissidents were uneasy about the claim that one virus could cause so many different diseases. But, once it was shown that HIV worked by undermining the immune system, thereby rendering the body vulnerable to a host of opportunistic infections, their concerns should have been put to rest. Similarly, the wealth of data on the successes of ARV treatment should have alleviated their initial worries about its overall therapeutic benefit. Thus one of the early AIDS dissident doctors, Joseph Sonnabend, had, by 2000, welcomed the life-saving capacity of ARVs, describing them as a “wonderful blessing” (Sonnabend 2000). However, this did not deter today’s AIDS denialists, who continue to cite his dated views on their Web sites in support of their unchanged views.¹

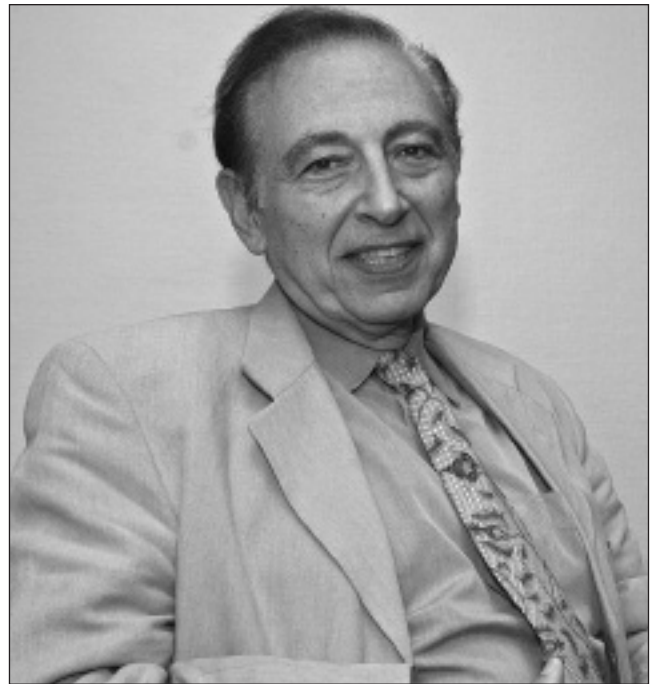
Given their resistance to all evidence to the contrary, today’s AIDS dissidents are more aptly referred to as AIDS denialists. This stance may be attributable, in part, to a genuine misunderstanding of the science of HIV. For example, in his affidavit to the Australian court in the Parenzee case, a member of the Perth Group, Valendar Turner, testified that HIV had not been isolated because it had been identified only through the detection of reverse transcription (the process of writing RNA into DNA), an activity not unique to retroviruses (Turner 2006, 4). In subsequent testimony for the prosecution, Robert Gallo (the discoverer of retroviruses and codiscoverer of HIV) pointed out that HIV had been identified as a retrovirus through the detection of reverse transcriptase, which is an

enzyme unique to retroviruses, not the activity of reverse transcription, per se. He added that “only a fool” would mistake the two (Gallo 2007b, 1310, 1313–1314).

Misunderstanding the science of AIDS may be part of the story, but it does not explain why AIDS denialists are so hostile to and disbelieving of AIDS science. Part of the answer probably has to do with the belief that AIDS science cannot be trusted because the “scientific establishment” has been corrupted by the pharmaceutical industry (see, e.g., Farber 2006). This resonates with what Jon Cohen (2006, 1) calls “pharmanoia,” or “the extreme distrust of drug research and development that’s sweeping the world.” John le Carré’s novel (and subsequent hit Hollywood movie) *The Constant Gardener*, which provides a conspiratorial account of unethical medical trials in Africa, is a classic in this genre (Le Carré 2001). This book was cited approvingly in a South African AIDS-denialist document coauthored by President Mbeki as being “well researched” and “illuminating” about the way the pharmaceutical industry influences academic research (Mbeki and Mokaba 2002).

The pharmaceutical industry is, of course, far from angelic. There are documented cases where drug companies have designed trials in ways to promote sales of particular products rather than to test the best possible treatments; where clinical trials in poor countries have been unethical; where early research indicating dangerous side effects has been ignored for too long; where patent law has been abused to prevent low-cost competition; where too many resources have been spent on marketing “me-too” drugs (that is, drugs that are only marginally different from existing products) rather than investing in innovative drug development; and where unethical financial inducements have been made to doctors, researchers, and politicians (Goozner 2004; Angell 2005). However, what such cases suggest is that the pharmaceutical industry (and industry-funded research) needs to be carefully scrutinized and regulated. It does not imply that the entire industry and associated medical science are harmful to humans. As Cohen (2006) argues, the problem with the new pharmanoia is that it has put “Big Pharma” on a par with “Big Tobacco” and, through wild exaggeration, has turned “shades of moral grey into black.”

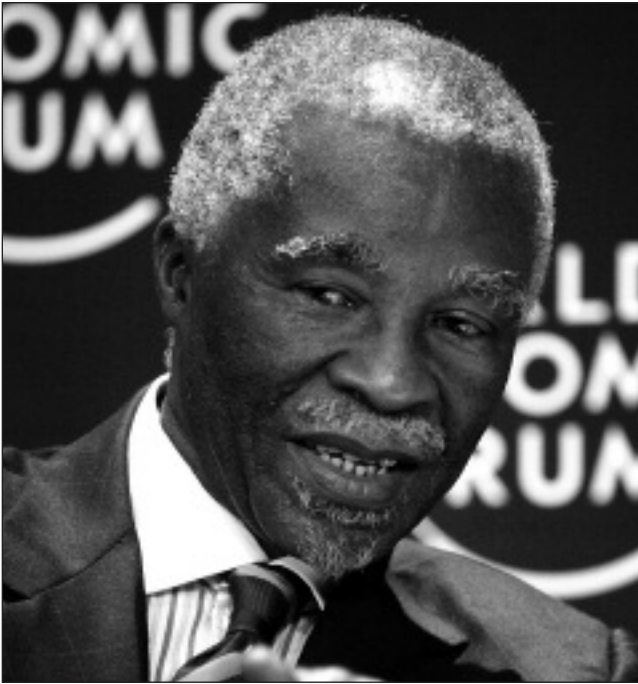
The same applies to AIDS research, where the pharmaceutical industry has a clear incentive to fund and support those research activities most likely to generate profits in the future. This means that additional mechanisms need to be created to ensure that more risky and less profitable—but nevertheless important—areas of research, like vaccine development, are supported. It does not imply, as asserted by the AIDS denialists, that the pharmaceutical industry is funding a global conspiracy including all AIDS scientists, epidemiologists, and medical practitioners to invent a disease in order to market harmful drugs. (This tactic has also been used to great affect by Kevin Trudeau in his infomercials; see SI January/February 2006, “What They Don’t Want You to Know.”) Aside from there being no evidence for this, the idea is incoherent, because the profit motive driving pharmaceutical companies gives them an incentive to keep people alive on chronic therapy as long as possible, not to kill them off quickly with dangerous drugs.



Robert Gallo, the discoverer of retroviruses, devoted ten pages of his book on discovering HIV to demolishing Deuschberg’s speculations. (AFP Photo/Roland Magunia [Photo via Newscom])

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Disrespect for AIDS scientists and physicians is a defining characteristic of AIDS denialists. Protected by a cloak of hubris—only they have the intelligence and moral courage to see the world for what it is—they portray themselves as lone, persecuted standard-bearers of the truth. As AIDS scientist John Moore (2006, 293) commented bitterly, their stance implies that “tens of thousands of health care professionals and research scientists are either too stupid to realize that HIV is not the cause of AIDS, or too venal to do anything about it for fear of losing income from the government or drug companies.” Equally galling for scientists is the fact that most of the



South African President Thabo Mbeki has encouraged AIDS deniers and slowed treatments. (Reuters/Finbarr O'Reilly, South Africa [Photo via Newscom])

outspoken AIDS denialists are journalists or academics with no scientific training and that those who have medical qualifications have never actually worked on HIV.

In the normal course of scientific engagement, this would leave the denialists with little if any credibility. Gallo made this point very well in the Parenzee court case with regard to Turner: “Is he a virologist? Does he do experiments on AIDS?” he asked the defense attorney when presented with Turner’s belief that HIV had not been isolated. “No,” interjected the judge. “He’s qualified in emergency medicine.” “I see,” replied Gallo. “I am not. Don’t ever come to me if you are hurt” (Gallo 2007b, 1272–1273). In a subsequent e-mail message to the scientists and activists who run the anti-AIDS-denialist Web site www.aidstruth.org, Gallo talked of his amazement at the “mass ignorance coupled with the grandiosity of selling themselves as experts” displayed by the Perth Group, saying that “it would be like us arguing with Niels Bohr on quantum mechanics” (Gallo 2007a).

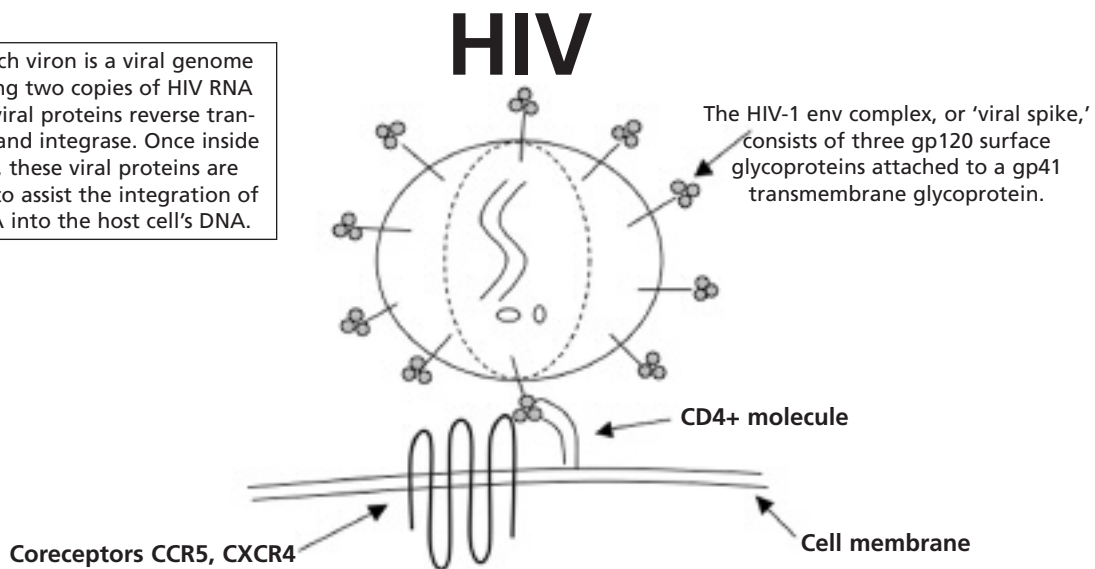
The only active AIDS denialist with any major scientific standing is Duesberg, who is a member of the National Academy of Sciences and the first person to isolate a cancer gene.² But his credibility to speak on AIDS is tarnished by the fact that he has never conducted any scientific research on HIV, let alone published it in peer-reviewed scientific journals. He simply does not have any evidence to support his erroneous claim that AIDS is caused by recreational and ARV drugs rather than HIV.

Unable to convince his scientific peers, Duesberg relies on the media (including the Internet) to promote his views directly to the public. His cause was assisted substantially by

The Attachment of HIV to the Host Cell

HIV mostly infects the lymphocyte helper T-cell (also called a CD4 cell because of the CD4+ molecule on its surface as a receptor for attachment of HIV). HIV has a high affinity for CD4+ molecules. CCR5 and CXCR4 are chemokine coreceptors.

Inside each viron is a viral genome comprising two copies of HIV RNA and the viral proteins reverse transcriptase and integrase. Once inside the cell, these viral proteins are released to assist the integration of viral RNA into the host cell’s DNA.



HIV infection results in significant loss of CD4 T-cells. This undermines the immune system, leading eventually to death. Normal count is 500–1,500 CD4 T-cells per microliter of blood. People with AIDS have below 200–350 CD4 T-cells per microliter

The Sunday Times in London from 1992 to 1994, when the science editor ran many long pieces attempting to discredit AIDS science. This enabled Duesberg to achieve a form of socially constructed credibility outside of conventional scientific channels (Epstein 1996, 105–178), which, in turn, prompted John Maddox (then editor of *Nature*) to go on the offensive and subject *The Sunday Times* during this period to regular critical review in *Nature*.

Largely as a consequence of Duesberg's profile, the scientific community was compelled to pay greater attention to his ideas than was warranted by their content. In 1991, Gallo (1991, 287–297) devoted ten pages of his book on discovering HIV to demolishing Duesberg's speculations. A couple of years later, *Science* investigated Duesberg's claims and concluded that none of them stood up to scrutiny (Cohen 1994). Undaunted, Duesberg and his colleague David Rasnick restated their long-refuted hypotheses in a 1998 article (which was followed immediately in the same journal by a point-by-point refutation [Galea and Chermann 1998]). None of this had any impact either on Duesberg or on journalists such as Farber, who continued to promote his views, largely unchanged from the early 1990s.

AIDS scientists are understandably baffled by such conviction-driven refusal to accept the implications of the weight of evidence to the contrary. As Gallo said of Duesberg in 1988, he is “like a little dog that won't let go” (quoted in Cohen 1994, 1644). Moore (1996) went even further, comparing Duesberg to the Black Knight from *Monty Python and the Holy Grail* who, after having all his limbs hacked off by his opponent, keeps on trying to fight with his teeth.

One of Duesberg's tactics is to exploit the uncertainty that is ever-present in science and demand increasingly exacting standards of “proof,” and, when this is not forthcoming, proclaim fallaciously that the alternative hypothesis must be true. As Maddox observed

Duesberg has not been asking questions or raising questions he believes should be answered, but has been making demands and implying (but sometimes saying outright) to colleagues, “Unless you can answer this, and right now, your belief that HIV causes AIDS is wrong.” It is as if a person were to have told Schrödinger in 1926, “Unless you can calculate the spectrum of lithium hydride, quantum mechanics is a pack of lies” (interestingly, that deceptively simple question is only now being answered). (Maddox 1993, 109)

This kind of fallacious reasoning is evident among other kinds of denialists, too, such as evolution deniers who see any gap in the fossil record as proof that God must have created the world (Mooney 2005).

Their zealous attachment to key ideas has a further consequence: the inability or refusal of AIDS denialists to weigh up risks and benefits. Thus, as soon as any toxicity can be shown for an ARV drug in any context, they conclude that the drug should not be prescribed in any situation. For example, when clinical evidence emerged that adverse events occurred among mothers on long-term Nevirapine therapy, this was seized upon by Farber (2006) to argue that Nevirapine should never be used in any circumstances—even as a single dose to prevent

maternal transmission of HIV, a drug regimen that had been shown to be safe. When this error was pointed out (Gallo et al. 2006), the AIDS-denialist group “Rethinking AIDS” backed Farber's strategy on the spurious grounds that it moved “neatly” between the two trial results as part of a single argument against Nevirapine (Rethinking AIDS 2007). They claimed, without any evidence, that both trials showed significant adverse events, when, in fact, not a single life-threatening event has ever been shown for single-dose Nevirapine.

All “debates” with AIDS denialists end up in a stalemate simply as a consequence of their refusal to play by the rules of reasonable debate. This is evident in the “rapid-responses” Web pages of the *British Medical Journal* (BMJ), where AIDS denialists such as Papadopulos-Eleopulos and Rasnick accounted for a disproportionate amount of space before the BMJ revised its rules and excluded this “shouting match of the deaf” (Butler 2003). Typically, the denialists would paste large amounts of convoluted text into their rapid-response submissions and then argue at length with anyone who responded.

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After trying to engage with the denialists, Peter J. Flegg, a physician from Blackpool Victoria Hospital, finally erupted with the following:

What is taking place on this forum is a farce, not a debate . . . Good scientists are meant to accept new evidence and incorporate this into their hypotheses. The denialist approach is to ignore new evidence that is contradictory to their predetermined stance. After comprehensive rebuttal of any point of view, the denialist tactic is to quickly switch to a different topic. Then later, when no-one is looking, they can switch back to the original theme, hoping no-one will realise that these points were completely discredited on an earlier occasion. (Flegg 2003)

Exactly the same tactics are evident on science blogs when AIDS denialists enter into “debate.” Tara C. Smith's science

blog “Aetiology” hosted several rambling and ultimately unproductive interactions with AIDS denialists—most notably Harvey Bialy (Duesberg’s biographer and fellow member of Mbeki’s AIDS panel). The denialists conceded nothing, not even when the case was clearly an open-and-shut one to any reader. For example, AIDS denialists persistently cite an old study by Nancy Padian that reported low HIV transmis-

President Mbeki was precisely one of those who was convinced that a scientific controversy existed—and, by slowing the rollout of ARVs in the public sector for both HIV prevention and AIDS treatment, his belief resulted in the loss of many thousands of lives.

sion rates between sexual partners (Padian et al. 1997) as supporting evidence for their claim that HIV cannot be transmitted sexually. When reminded that participants in the Padian study were strongly counseled to practice safe sex (which means that the study cannot be used to back the claim that HIV, per se, is difficult to transmit sexually) and when presented with evidence from other studies showing that the risk of sexual transmission can be 20 percent or higher in developing countries, the denialists simply changed the topic. This prompted Chris Noble to comment:

Well, we seem to have drifted a long way from the *famous Padian study* which according to Harvey Bialy “*demonstrated so well that sexually transmitted HIV was a figment.*”

I note that Bialy never once made a comment that was relevant to the study. These are the people that claim that HIV cannot possibly cause AIDS. You ask them for justification and they give you the “Padian study.”

You demonstrate that this study cannot be used to conclude that HIV is not sexually transmitted and they go all silent, bring up other studies or in Bialy’s case proceed to insult everyone that doesn’t worship Peter Duesberg.

I predict that in the future the exact same people will again cite the “Padian study” as proof that HIV is not sexually transmitted. (Noble 2006)

Exactly as he predicted, the denialists continued to misrepresent Padian’s study (see Farber quoted in Kruglinski 2006 and Turner 2006, 13–14) and, even when Padian herself protested about the way that AIDS denialists have misused her work and ignored the available evidence (Padian n.d.). The denialists dismissed her piece as “info-ganda” (George 2006).

This lack of respect for the integrity of scientists makes it very difficult for AIDS scientists to make any headway. As Brian Foley, a scientist who works with the HIV database at Los Alamos National Laboratory, commented after a long blog exchange with South African AIDS denialist Anita Allen:

There is no such thing as “scientific debate” really. Science is about experiments, data and theories to explain the data. If Anita says “The virus has never been isolated” and I say “In fact dozens of infectious molecular clones of HIV-1 have been generated and that is as good as “isolation” gets for retroviruses,” one of us has to be lying. (Foley 2006)

Foley’s comments point to the central role of integrity and respect for expertise in science. He is saying that for Allen, who is not a scientist, to claim that HIV does not exist amounts to her accusing him of misunderstanding or lying about the vast HIV databank he has at his fingertips. For him, her refusal to accept the mountain of evidence (and his bona fides to report it) amounts to her opting to believe—and propagate—lies.

As far as the scientific community is concerned, the “debate” over whether HIV causes AIDS has long been settled. As the AIDS scientists and activists who run the Web site www.aidstruth.org put it:

For many years now, AIDS denialists have been unsuccessful in persuading credible peer-reviewed journals to accept their views on HIV/AIDS, because of their scientific implausibility and factual inaccuracies. That failure does not entitle those who disagree with the scientific consensus on a life-and-death public health issue to then attempt to confuse the general public by creating the impression that scientific controversy exists when it does not. (AIDSTruth 2007)

Unfortunately, President Mbeki was precisely one of those who was convinced that a scientific controversy existed—and, by slowing the rollout of ARVs in the public sector for both HIV prevention and AIDS treatment, his belief resulted in the loss of many thousands of lives (Nattrass 2007). He has also been associated with Christine Maggiore, the controversial HIV-positive American AIDS denialist who does not practice safe sex and campaigns actively against the use of ARVs (Moore and Nattrass 2006). When Maggiore was pregnant with her second child, she was featured on the cover of *Mothering* magazine with “no AZT” emblazoned across her abdomen. She did not take ARVs to prevent infecting her baby with HIV and increased the risk of transmission yet further by breastfeeding the child. Tragically, her daughter died three years later of what the Los Angeles coroner attributed to AIDS-related pneumonia (Ornstein and Costello 2005). Maggiore, however, continues to deny that

HIV had anything to do with the death, claiming instead that the child died because of an allergic reaction to an antibiotic, despite substantial evidence to the contrary (Bennett 2006).

People in positions of authority, be they statesmen like Mbeki or parents like Maggiore, hold the lives of others in their hands. For them to reject science in favor of AIDS denialism is not only profoundly irresponsible but also tragic. But responsibility for unnecessary suffering and death rests also with the AIDS denialists who promote discredited and dangerous views and encourage people to reject scientifically tested treatments.

Notes

1. See, e.g., www.virusmyth.net/aids/index/jsonnabend.htm.

2. Another AIDS denialist with scientific credentials is Kary Mullis, who won a Nobel Prize in chemistry for inventing the polymerase chain reaction. However, he, too, has never done any scientific research on HIV or AIDS and, unlike Duesberg, is not active in the AIDS denialist movement. His autobiography (Mullis 1998) documents his skepticism about the relationship between HIV and AIDS as well as his encounters with aliens and his belief in flying saucers and astrology.

References

- AIDSTruth. 2007. Answering AIDS denialists and AIDS lies. AIDSTruth Web site. Available at: www.aidstruth.org/answering-aids-denialists.php.
- Angell, Marcia. 2005. *The Truth about Drug Companies: How They Deceive Us and What to Do about It*. New York: Random House.
- Bennett, Nicholas. 2006. A report on Eliza-Jane Scovill's Death, in rebuttal to that of Mohammed Al-Bayatti. Available at: http://catallarchy.net/blog/wp-content/images/A_report_on_Eliza_Ver2.pdf.
- Brocklehurst, Peter. 2006. Interventions for reducing the risk of mother-to-child transmission prevention of HIV infection. Cochrane Database of Systematic Reviews 2006(2). Available at: www.mrw.interscience.wiley.com/cochrane/clsystrev/articles/CD000102/pdf_fs.html.
- Butler, Declan. 2003. Medical journal under attack as dissenters seize AIDS platform. *Nature* 426 (November): 215.
- Cohen, Jon. 1994. The Duesberg phenomenon. *Science* 266 (December 9): 1642–1649.
- . 2006. Pharamonia: Coming to a clinical trial near you. Slate. February 21. Available at: www.slate.com/id/2136721/.
- Duesberg, Peter, and David Rasnick. 1998. The AIDS dilemma: Drug diseases blamed on a passenger virus. *Genetica* 104: 85–132.
- Duesberg, Peter, Claus Koehnlein, and David Rasnick. 2003. The chemical bases of the various AIDS epidemics: Recreational drugs, anti-viral chemotherapy and malnutrition. *Journal of Bioscience* 28(4): 383–412.
- Epstein, Stephen. 1996. *Impure Science: AIDS, Activism and the Politics of Knowledge*. Berkeley, Calif.: University of California Press.
- Farber, Celia. 2006. Out of control: AIDS and the corruption of medical science. *Harper's Magazine*. March: 37–52.
- Flegg, Peter J. 2003. Letter (Rapid Response): HIV/AIDS—there is no “debate.” March 3. Available at: www.bmj.com/cgi/eletters/326/7381/126/e#30113.
- Foley, Brian. 2006. Comment following Media's Manto-bashing has undermined important nutrition message (Akhona Cira, JournAIDS [blog], August 11). September 3. Available at: www.journAIDS.org/blog/2006/08/11/media%e2%80%99s-manto-bashing-has-undermined-important-nutrition-message/#comments.
- Galea, Pascal, and Jean-Claude Chermann. 1998. HIV as the cause of AIDS and associated diseases. *Genetica* 104: 133–42.
- Gallo, Robert. 1991. *Virus Hunting: AIDS, Cancer and the Human Retrovirus: A Story of Scientific Discovery*. New York: Basic Books.
- Gallo, Robert, Nathan Geffen, Greg Gonsalves, Richard Jeffries, Daniel Kuritzkes, Bruce Mirken, John Moore, and Jeff Safrin. 2006. Errors in Celia Farber's March 2006 article in *Harper's Magazine*. Available at: www.aids.truth.org/harper-farber.php#a1 and www.tac.org.za/Documents/ErrorsInFarberArticle.pdf.
- Gallo, Robert. 2007a. E-mail message to the author and others. February 11, 2007.
- . 2007b. Testimony to the Australian Court of Criminal Appeal in the Andre Parenzee case. February 12. Available at: <http://aras.ab.ca/articles/legal/Gallo-Transcript.pdf>.
- “George.” 2006. Comment following The Padian waffle (Hank Barnes, You Bet Your Life [blog], August 9). August 10. Available at: http://barnes.world.blogs.com/barnes_world/2006/08/more_on_african.html.
- Goozner, Merrill. 2004. *The \$800 Million Pill: The Truth behind the Cost of New Drugs*. Berkeley, Calif. and Los Angeles, Calif.: University of California Press.
- Hurley, Dan. 2006. *Natural Causes: Death, Lies, and Politics in America's Vitamin and Herbal Supplement Industry*. New York: Broadway Books.
- Kruglinski, Susan. 2006. Questioning the HIV hive mind: Interview with Celia Farber. *Discover*. 19 October. Available at: www.discover.com/web-exclusives/celia-farber-interview-aids/?page.
- Le Carré, John. 2001. *The Constant Gardener*. New York, London, Toronto, and Sydney, Australia: Pocket Star Books.
- Maddox, John. 1993. Has Duesberg a right of reply? *Nature* 363 (May 13): 109.
- Mbeki, Thabo, and Peter Mokaba. 2002. Castro Hlongwane, Caravans, Cats, Geese, Foot and Mouth Statistics: HIV/AIDS and the Struggle for the Humanisation of the African. Circulated to ANC branches: 1–132. Available at: www.virusmyth.net/aids/data/ancdoc.htm. (Note: This document was produced anonymously. However, it was circulated in the ANC by Peter Mokaba, and the document's electronic signature links it to Mbeki—and, hence, Mbeki is widely believed to be the primary author.)
- Mooney, Chris. 2005. *The Republican War on Science*. New York: Basic Books.
- Moore, John. 1996. A Duesberg adieu! *Nature* 380 (March 28): 293–294.
- Moore, John, and Nicoli Natrass. 2006. Deadly Quackery. *New York Times*. June 4.
- Mullis, Kary. 1998. *Dancing Naked in the Mind Field*. New York: Vintage Books.
- Natrass, Nicoli. 2007. *Mortal Combat: AIDS Denialism and the Struggle for Antiretrovirals in South Africa*. University of KwaZulu-Natal Press: Pietermaritzburg, South Africa.
- Noble, Chris. 2006. Comment following Discussion of the Padian paper (Smith, Tara C., Aetiology [blog], February 23). March 1. Available at: http://scienceblogs.com/aetiology/2006/02/discussion_of_the_padian_paper.php.
- Ornstein, Chris, and Dan Costello. 2005. A mother's denial, a daughter's death. *Los Angeles Times*. September 24.
- Padian, Nancy. N.d. Heterosexual transmission of HIV. AIDSTruth.org (Web site). Available at: www.aidstruth.org/nancy-padian.php.
- Padian, Nancy, Stephen C. Shiboski, Sarah O. Glass, and Eric Vittinghoff. 1997. Heterosexual transmission of human immunodeficiency virus (HIV) in Northern California: Results from a ten-year study. *American Journal of Epidemiology* 146(4): 350–357.
- Presidential AIDS Advisory Panel (PAAP). 2001. A Synthesis Report of the Deliberations by the Panel of Experts Invited by the President of the Republic of South Africa, the Honourable Thabo Mbeki. Available at: www.info.gov.za/otherdocs/2001/aidspanelpdf.pdf.
- Rethinking Aids. 2006. Correcting Gallo: Rethinking AIDS responds to Harper's “out of control” critics (Item #6: Comparing clinical trial PACTG 1022 to HIVNET 012). September 27. Available at: www.rethinkingaids.com/GalloRebuttal/Farber-Gallo-06.html.
- Simon, Viviana, David D. Ho, and Quarraisha Abdool Karim. 2006. HIV/AIDS epidemiology, pathogenesis, prevention and treatment. *Lancet* 368 (August 5): 489–504.
- Smit, Colette, Ronald Geskus, Sarah Walker, Caroline Sabin, Roel Coutinho, Kholoud Porter, Maria Prins, and the CASCADE Collaboration. 2006. Effective therapy has altered the spectrum of cause-specific mortality following HIV seroconversion. *AIDS* 20(5): 741–749.
- Sonnabend, Joseph. 2000. Honouring with Pride, 2000: Honouree: Joseph Sonnabend. Available at: www.amfar.org/cgi-bin/iowa/amfar/record.html?record=22.
- Turner, Valendar. 2006. Affidavit (in the Andre Parenzee case, Australia). Available at: <http://garlan.org/Cases/Parenzee/Turner-Affidavit.pdf>.
- UNAIDS. 2006. AIDS Epidemic Update, December 2006. Available at: http://data.unaids.org/pub/EpiReport/2006/2006_EpiUpdate_en.pdf. □

For more information on the scientific inaccuracies and other problems relating to AIDS, visit www.aidstruth.org.