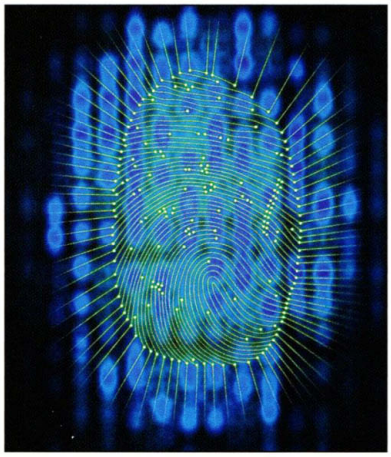
Many Courts Still *Frye* Scientific Evidence

DAVID L. FAIGMAN'S POLICY FORUM "IS science different for lawyers?" (19 July, p. 339) gives the impression that *Daubert*, the complex 1993 U.S. Supreme Court decision about science in the courtroom, is "the" standard for admissibility of scientific evidence in U.S. courts. It is not; a substantial number of courts favor an arguably simpler approach to the admission of scientific evidence (*1*). The courts of 17 states continue to apply the *Frye* "general acceptance" test from a 1923 ruling by a federal court (*2*). That court excluded expert testimony about a "blood pressure deception test" with a simplicity that contrasts to the multistep process of *Daubert*—admissible scientific evidence must be based on a "well-recognized scientific principle or discovery [that is] sufficiently established to have gained general acceptance in the particular field to which it belongs" (*2*).



Fingerprinting recently came under scrutiny when a federal judge ruled that it did not meet the *Daubert* standard; the decision was later reversed.

Thus, for a scientific theory or technique to be a basis for courtroom testimony in a *Frye* state trial, the presiding judge has to determine from expert testimony that the science has such general acceptance. And although *Frye* is used by a minority of states, many of these states are among the most populous and litigious jurisdictions. So while *Daubert* is the federal standard for scientific evidence, many trials are actually conducted in *Frye* jurisdictions under the general acceptance rule for scientific evidence. And, in contrast to the regard of Faigman for *Daubert,* many of the courts eschewing it in favor of *Frye* argue that *Frye* sets a higher standard against junk science, is more rigorous, and is easier to administer (*1*).

Faigman's endorsement of the complex *Daubert* doctrine notwithstanding, he does further a compelling charge for scientists and their professional organizations—to assist courts by identifying impartial and expert scientists who can supplant the legal legionnaires who now provide dubious expert testimony about often friable scientific evidence in many U.S. courts (*3*).

LEONARD DEFTOS
Department of Medicine, University of California at San Diego/SDVAMC, 3350 La Jolla Village Drive, San Diego, CA 92161, USA. E-mail: ljdeftos@ucsd.edu

References
1. E. J. Imwinkelried, *Natl. Law J.*, 13 May 2002, p. B11.
2. *Frye v. United States*, 293 F. 1013 (D.C. Cir. 1923).
3. L. J. Deftos, *Acad. Med.* **74**, 231 (1999).

Response

DEFTOS IS CORRECT THAT *DAUBERT* IS NOT the only standard U.S. courts use when deciding the admissibility of expert testimony. I focused on *Daubert* because it provided the applicable rule in Judge Pollak's original decision that fingerprinting does not meet the Supreme Court standards of admissible scientific evidence and his subsequent reversal of that decision. The primary alternative to *Daubert* is what Deftos calls the "arguably simpler" *Frye* test, which is the very test *Daubert* replaced as the standard applied in the federal courts. Deftos is also correct that I "endorse" the "complex *Daubert* doctrine." Deftos, however, is incorrect in characterizing *Frye*'s general acceptance test as being the primary rule of the most populous and litigious jurisdictions and in his view that it sets a higher standard and is easier to administer than *Daubert*.

Most states today apply the *Daubert* standard or a similar form of validity and reliability assessment in which the judge is responsible for assessing the methodological strengths of proffered expert testimony. Although it is true that many large and populous states, such as New York, Florida, and California, persist in applying a *Frye*-styled general acceptance test, the reality is rather more complicated than Deftos implies. Florida and New York use large elements of *Daubert* in their *Frye* analyses, and California, going in the opposite direction, uses a *Frye* standard that excludes virtually no expert testimony at all (*1*).

The more important issues concern whether *Frye* indeed provides a higher standard, and is thus a better guard against bad science, and whether *Frye* is easier to administer than *Daubert*. Both assertions are incorrect. Forensic sciences prove the error of the first claim. For instance, fingerprinting, handwriting identification, and bite marks all appear to easily meet the general acceptance test, and these techniques have passed muster under *Frye* from the start. Indeed, not until *Daubert* was the validity of these "specialties" questioned. The forensic science community is mainly a guild that furthers its members' interests but does virtually no empirical research. This is *Frye*'s Achilles' heel. The test is only as good as the fields surveyed. Unfortunately, in too many fields, the law relies upon a mistaken consensus for validity. Deftos also sees virtue in *Frye*'s ease of administration. Properly applied, however, the *Frye* test is no easier to administer than *Daubert*. The general acceptance standard actually should require a fairly sophisticated understanding of science. Judges must be able to define the pertinent field, and they must understand the vocabulary of science well enough to determine whether the expertise that is relevant to the law is what is accepted by the respective scientists surveyed. For instance, general acceptance of polygraphs obviously cannot depend on the views of polygraph operators any more than the general acceptance of astrology could depend on the views of astrologers. Moreover, government agencies might generally accept the polygraph because it is a highly useful tool of interrogation. This utility does not mean that courts should accept its validity.

In the final analysis, both *Frye* and *Daubert* should work to the same end. Courts should be convinced of the validity and reliability of the basis for proffered expert testimony. To accomplish this task, courts should consider many factors, including how adequately the hypotheses of the expert have been tested, the likely error associated with admitting the expertise,

whether the hypotheses have survived critical review by fellow scientists, and, as *Frye* suggested, the acceptance of the knowledge or technique in the pertinent field. *Frye* was not the wrong standard. It was just too simplistic. Science is not simple, and we fool ourselves looking for magic bullets to help courts deal with it without doing the work. Yes, *Daubert* is complex. Hopefully, it is complex enough to handle the complexities of expert evidence.

DAVID L. FAIGMAN

Hastings College of the Law, University of California, San Francisco, CA 94102, USA. E-mail: faigmand@uchastings.edu

Reference

1. See, generally, D. L. Faigman, D. H. Kaye, M. J. Saks, J. Sanders, *Modern Scientific Evidence: The Law and Science of Expert Testimony* (West Group, St. Paul, MN, ed. 2, 2002).

Supplementing Antiretroviral Therapy

JON COHEN'S ARTICLE "CONFRONTING THE limits of success" (News Focus, 28 June, p. 2320), which discusses the limits of antiretroviral therapy (ARV) in managing HIV disease, overlooks an important area of research. People with access to ARV have been using a variety of interventions, notably, dietary supplements as defined by the Food and Drug Administration, to prevent or manage the immediate and delayed side effects of ARV.

Unfortunately, the majority of HIV-infected individuals do not have any access to ARV. The World Health Organization has estimated that nearly 80% of the world's population relies on botanical and other indigenous medicines as their primary source of healthcare (*1*). Some of these traditional medicines may be helpful in slowing the progression of HIV and are beginning to be investigated.

There is modest research on the use of supplements to counteract drug side effects or modulate immunity and on the use of traditional medicine against HIV, but the scope of this research is limited. One study showed the benefit of glutamine in offsetting diarrhea resulting from protease inhibitor treatment (*2*). Acetylcarnitine is being assessed at the Royal Free Hospital in London for its effect in managing neuropathy related to nucleoside analog therapy.

However, a great deal more clinical data are needed to evaluate the benefits, risks, and limitations of such interventions. Certain botanicals, multivitamins, and B-complexes have shown some efficacy in slowing HIV progression (*3*–*7*). Could some combination of low-cost and locally available interventions help to delay progression and provide hope as ARV is slowly being introduced to resource-poor areas?

The long-term impact of ARV interventions may not be fully understood, but we certainly understand the outcome of failing to treat people with HIV. Methodologically rigorous and ethically sound clinical studies of botanical and dietary supplement interventions must be undertaken immediately and vigorously.

GEORGE M. CARTER,[1]* RICHARD ELION,[2] MARK KUEBEL,[1] JANET MINDES,[3] DEVAN NAMBIAR,[4] JANE SHULL,[5] VINCE SILENZIO,[6] JACKIE WOOTTON[7]

[1]Foundation for Integrative AIDS Research (FIAR), 62 Sterling Place, Suite 2, Brooklyn, NY 11217, USA. [2]George Washington University School of Medicine, Washington, DC 20052, USA. [3]CAM Career Development Richard and Hinda Rosenthal Center for Complementary and Alternative Medicine, Columbia University, College of Physicians and Surgeons, New York, NY 10032, USA. [4]Gayatri Integrative Health Consulting, Toronto, Ontario, Canada. [5]Philadelphia FIGHT (Field Initiating Group for HIV Trials), Philadelphia, PA 19107, USA. [6]Columbia University Center for Family Medicine, New York, NY 10032, USA. [7]Alternative Medicine Foundation, Potomac, MD, 20859 USA.

*To whom correspondence should be addressed.

References

1. World Health Organization, *Research Guidelines for Evaluating the Safety and Efficacy of Herbal Medicines* (WHO Regional Office for the Western Pacific, Manila, Phillipines, 1993).
2. F. Huffman, M. Walgren, paper presented at the IAS conference on AIDS Pathogenesis, Buenos Aires, Argentina, 6 to 11 July 2001.
3. A. S. Kanter *et al.*, *J. AIDS* **21**, 252 (1999).
4. P. Kelly *et al.*, *AIDS* **13**, 495 (1999).
5. R. D. Semba, A. M. Tang, *Br. J. Nutr.* **81**, 181 (1999).
6. A. M. Tang et al., *AIDS* **11**, 613 (1997).
7. A. M. Tang *et al.*, *Am. J. Epidemiol.* **138**, 937 (1993).

Alternative HIV Vaccine Strategies

IN HIS EDITORIAL "STEERING A COURSE TO AN AIDS vaccine" (28 June, p. 2297), David Baltimore succinctly expresses the despair concerning the development of an effective vaccine against HIV infection. He notes the difficulties in raising antibodies and cytotoxic lymphocytes (CTL) to a virus that mutates rapidly. Indeed, escape from CTL is the hallmark of simian immunodeficiency virus (SIV) infection and CTL with high avidity can rapidly select for escape variants (*1*). In the same issue, Jon Cohen ("Monkey puzzles," News Focus, 28 June, p. 2325) describes the pessimism regarding basing an effective vaccine on CTL mechanism (*1*, *2*).

However, there is an alternative strategy to the prevalent approach of using HIV proteins or DNA. We have been guided by "experiments of nature," preventing HIV infection by targeting either alloimmunity (*3*, *4*) or the CCR5 coreceptor of HIV (*5*).

HIV virions contain HLA class I and II proteins (*6*), and alloimmunity may play a role in HIV transmission from infected mothers to