Scientific Counselors (BSC) of the Division of Cancer Treatment (DCT) to delete 1 year of funds from a specific contract that provides laboratory support for a clinical trial of tumor necrosis factor (TNF) transfection into tumor-infiltrating lymphocytes (TILs). Anderson correctly observes that this decision would have no effect on intramural funding for the study, but attributes to Steven Rosenberg the incorrect statement that "The DCT board has authority only over the outside contract . . ." and not over internal NIH funding. In fact, all intramural DCT programs, including those of Rosenberg's Surgery Branch, are subjected to careful review every 4 years by site-visit teams composed of members of the BSC and ad hoc experts. The BSC reviews the findings of each site visit and recommends promotions, tenure actions, and changes in personnel, space, and budget for specific projects. While these recommendations are not binding, they weigh heavily in the future distribution of intramural resources.

In the case of Rosenberg's TIL contract, the BSC's intention was to withhold a portion of the contract funding related to TNF transfection studies in patients pending further developmental work to improve TNF secretion rates and tumor localization. The BSC will reconsider this project in February 1994 and has the option of restoring the deleted funds if satisfied with progress at that time. While the BSC's decision will delay expansion of this specific trial, in no way does it reflect a diminished interest in or lesson the importance of this field of research.

Bruce A. Chabner
Director,
Division of Cancer Treatment,
National Cancer Institute,
National Institutes of Health,
Bethesda, MD 20892
Ronald Levy
Chairman, Board of Scientific Counselors,
Division of Cancer Treatment,
National Cancer Institute, and
Stanford University School of Medicine,
Stanford, CA 94305

■

Biosphere 2: A New Kind of Science

The 19 March News & Comment article by Traci Watson about Biosphere 2 (p. 1688) indicates to me that the mission of this venture is not generally understood by the scientific community. The experiment is not traditional, reductionist, discipline-oriented science, but a new, more holistic level of ecosystem science that has been called "biospherics." Biosphere 2 is as much a human experiment as a scientific one.

The eight biospherans were selected and trained, not as scientists, but as resourceful individuals with survival skills who could work together to live for 2 years at a subsistence level. In reality, Biosphere 2 is research at the interface between the natural and the social sciences, where the real world problems of the future lie.

Overall, the mission of Biosphere 2 is to find out if approximately 1 hectare of pollution-free landscape (that is, with no industries or automobiles) consisting of 80% natural or seminatural ecosystems (the biomes) and 20% labor-intensive polyculture agriculture would provide bioregenerative life support for eight people. The answer is apparently going to be, "just barely." The experiment could also be considered a microcosm test of the Gaia Hypothesis—that an adequate flow of high-quality energy (sun, electricity, and natural gas, in this case) and a diversity of life forms will co-evolve or self-organize into a system that will support life. It is inconceivable to me that anyone would expect an instant achievement of balances, such as between oxygen and carbon dioxide, when we don't fully understand how such balances are maintained in Biosphere 1 (the Earth).

When one considers that nothing on the scale of Biosphere 2 has been attempted before (NASA's designs for regenerative life support are entirely different, and much smaller) and how little we really know about how our Biosphere 1 works, a measure of success will have been achieved if the biospherans come out alive and healthy this fall after the 2-year isolation. Certainly the experiment will have improved our understanding of human-biosphere interrelations and helped answer the question of how much natural environment must be preserved for life support, and it will have provided a basis for improving the design next time around.

Eugene P. Odum*
Institute of Ecology,
University of Georgia, Athens, GA 30602

*Member, original Biosphere 2 advisory committee.

■

Judging Science

In his informative article on the *Daubert et al.* v. *Merrell Dow* case now before the U.S. Supreme Court ("Supreme Court to weigh science," News & Comment, 29 Jan., p. 588), Eliot Marshall notes that the American College of Legal Medicine (ACLM) has filed a friend-of-the-court brief on behalf of Merrell Dow, asking that the lower court decisions be upheld. The Carnegie Commission brief Marshall discusses is not the only one that "proposes a method for screening scientific testimony"; ACLM's brief does so as well. We ask the court to consider the following questions: Was a controlled study performed? Were the results statistically significant? Has the study been published in a peer-reviewed journal? The evidence proffered in this case did not meet all of those criteria. Thus, we believe it did not attain the threshold that would permit it to be helpful to a jury, and the courts were correct to exclude it under the federal rules.

Jay A. Gold
American College of Legal Medicine,
611 East Wells Street,
Milwaukee, WI 53202
Miles J. Zaremski
Elaine Rappaport Lev
Deborah H. Shefrin
Arnstein & Lehr,
120 South Riverside Plaza, Suite 1200,
Chicago, IL 60606–3913

Marshall's article about the upcoming Daubert case is valuable because it goes beyond the details of a specific case and presents the broader issues of scientific standards in the courtroom. I want to clarify two points raised in this article that arise because of my involvement in this case.

After describing the plaintiffs' analyses, Marshall writes, "And, so far, it hasn't been presented to a jury, because the case has been dismissed in each courtroom . . . ." On the contrary, this evidence was admitted by the court in at least five cases involving the antinauseant drug Bendectin.

Marshall correctly states that I direct "a California state health department group that monitors reproductive risk." However, the arm of the department that is devoted to the study of birth defects is distinct from this group. Furthermore, the analysis of Bendectin that I performed was not carried out as part of my work for the state, and does not represent the views of the department but are my own.

Shanna H. Swan
964 The Alameda,
Berkeley, CA 94707

■

Multidrug Resistance–Associated Protein: Sequence Correction

In the report "Overexpression of a transporter gene in a multidrug-resistant human lung cancer cell line" (4 Dec. 1992, p. 1650) (*1*), we presented the predicted amino acid sequence of a novel adenosine triphosphate–binding cassette transporter gene that we designated "multidrug resistance–associated protein" or "MRP."

We recently discovered a typographical error in the nucleotide sequence of MRP that resulted from the introduction of an additional thymidine residue at position 206 of the original DNA sequence. This additional thymidine residue is not present in any of our original sequencing autoradiographs, partial sequence files, or the original compilation of the sequence. It was introduced as result of a typographical error during the manipulation of the sequence to generate forms suitable for publication and appears in our report.

```
                        10        20
Original              MAPTRSGTGMSRGIPATPTSP

Corrected  MALRGFCSADGSDPLWDWNVTWNTSNPDFT
             10        20        30

                30        40        50
Original   SAFRTRSSCGCLVFTSGPVFPFYFLYLSRH
                                  ||||||||||
Corrected  KCFQNTVLVWVPCFYLWACFPFYFLYLSRH
             40        50        60
```

Fig. 1. Corrected MRP-deduced amino acid sequence.

The additional base in the nucleotide sequence renders incorrect the predicted sequence of the first 40 amino acids of the translated open reading frame. As a consequence, the predicted size of MRP is 1531 amino acids rather than 1522, as we stated. The correct sequence appears in Fig. 1 and has been corrected in GenBank.

Susan P. C. Cole
Roger G. Deeley
Cancer Research Laboratories,
Queen's University,
Kingston, Ontario, Canada K7L 3N6

References

1. S. P. C. Cole *et al.*, *Science* **258**, 1650 (1992).

■

Knowing It All

An "omniscient super-physicist" who did *not* care to measure "the velocity, momentum, and every other property of every particle in the universe" (Research News, 26 Mar., p. 1824) could also "find out who killed JFK and how the dinosaurs died. . . ." In fact, being omniscient, she or he would not have to find out, but would know already.

Ronald N. Bracewell
Department of Electrical Engineering,
Stanford University, Stanford, CA 94305

Corrections and Clarifications

The *x*-axis of the graph accompanying Jon Cohen's News article "Keystone's blunt message: 'It's the virus, stupid' " (16 Apr., p. 292) should have been labeled "Monkeys."

The footnote on page 482 accompanying Jon Cohen's News & Comment article "Drug companies join forces in search for AIDS therapy" (23 Apr.) should have listed Bristol-Myers Squibb Company as one of the participating companies in the collaboration.