SCIENCE

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Information for Contributors appears on pages 37–39 of the 7 January 1994 issue. Editorial correspondence, including requests for permission to reprint and reprint orders, should be sent to 1333 H Street, NW, Washington, DC 20005.
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LETTERS

Livermore Lab Head

Ellis Rubinstein, in his 8 April article describing the events surrounding the resignation of John Nuckolls as director of the Livermore Laboratory (News, p. 195), refers to "negative testimony given to the review committee" by me and by several key staff members. In contrast with that statement, the thrust of my remarks to the review committee was in strong agreement with Nuckolls' strategic vision for the laboratory and was very supportive of the management structure that he had recently put in place. On the basis of informal conversations, I believe that a similar perspective was conveyed by the laboratory's associate directors.

C. Bruce Tarter
Deputy Director,
Lawrence Livermore National Laboratory,
Livermore, CA 94550, USA

Response: *Science*'s account was based on well-placed sources who were part of the evaluation process. Moreover, repeated calls to Livermore staff members to whom confidentiality was guaranteed elicited only one call from an individual already known to be critical of Nuckolls. A manager at the highest level of the laboratory volunteered to recruit individuals who supported Nuckolls; there were no spontaneous calls to *Science* and no response to repeated calls by *Science* to staff members.

—Daniel E. Koshland Jr.

■

Viral Recombination in Transgenic Plants

Bryce W. Falk and George Bruening (Perspectives, 11 Mar., p. 1395) mistakenly cite our Union of Concerned Scientists' report *Perils Amidst the Promise* (Washington, DC, 1993) as assuming that viral recombination could occur "*only* when a virus infects a plant that is transgenically expressing the genes of other viruses" (emphasis added). Although our report does identify the creation of new viruses through recombination as a risk associated with transgenic, virus-tolerant plants, it does not suggest that transgenic plants represent the only circumstances under which recombination occurs. In fact, the report recommends that "rates and impacts of recombination" in traditional crops be compared to those in transgenics as a way of evaluating the risk represented by the transgenics (p. 38).

With regard to those tests, the Union of Concerned Scientists recommends that they be done *before* the government approves commercial release of virus-resistant transgenic crops. Sixteen virus-resistant transgenic crops comprising 39 crop-viral protein combinations have been field-tested, and many will soon be ready for commercialization. Virus-resistant plants may have a place in tomorrow's agriculture if, as Falk and Bruening say, their risks are indeed "vanishingly small." So far, however, the magnitude of the risks of transgenics is a matter of conjecture rather than experimental data. Our society has brushed off concerns about the risks of earlier technologies to our detriment. Let's do better this time around.

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Union of Concerned Scientists,
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Washington, DC 20036, USA
Jane Rissler
Senior Staff Scientist,
Union of Concerned Scientists

Response: Mellon and Rissler refer to possible detriments from widespread introduction of transgenic crop plants expressing RNA encoding plant virus genes and support comparing rates of recombination between virus RNA and transgenic RNA with rates of recombination between two virus RNAs. We presented in our Perspective a figure that compares the apparent ease with which recombination has been detected for the two pairs of RNA types. We believe our figure takes a first small step in comparing rates of recombination and provides an indication that recombination between transgenic RNA and virus RNA, as reported in three cited studies, has been no more readily detected than recombination between two virus RNAs, all results under conditions of strong selection.

Mellon and Rissler state, quoting a phrase from our Perspective, that we assert that a report of the Union of Concerned Scientists assumes recombination could occur only when a virus infects a plant that is transgenically expressing the genes of other viruses. We made no such assertion. The sentence in our Perspective that contains the quoted phrase is concerned with the possibility of recombination between RNAs

of viruses that do not and do, respectively, systemically infect the plant. It reads, "Mixed subliminal and conventional infections have likely already brought together combinations of virus genes that some have assumed could be in proximity only when a virus infects a plant that is transgenically expressing the genes of other viruses." Recommendations in the report of the Union of Concerned Scientists rely not only on the assumption that transgenic plants expressing virus RNA sequences will provide new opportunities for recombination between distantly related virus RNA sequences but also on the assumption that such opportunities are not already very common in crop plants. The phenomena we identified in our Perspective give reason to doubt the validity of the latter assumption. Detriment to society can derive from overestimating, as well as from underestimating, the risks of a new technology, relative to risks inherent in natural phenomena and in already practiced technologies.

George Bruening
Bryce W. Falk
Center for Engineering Plants for Resistance Against Pathogens, University of California, 1930 Fifth Street, Davis, CA 95616, USA

■

Adolescent Health Study

The piece "Teen sex survey back on track" (Random Samples, 25 Mar., p. 1688) presents a misleading picture of the congressionally mandated study of adolescent health recently funded by the National Institute of Child Health and Human Development. This new comprehensive, national longitudinal study is designed to obtain long-needed information about the determinants of adolescent health. Its pioneering design moves beyond most existing research to look at health determinants and influences in the environments of young people—their families, peer groups, schools, neighborhoods, and communities. It is not a "sex survey," but a broad-reaching study that focuses on all aspects of adolescent health and health-related behaviors.

Perhaps as disappointing as its misrepresentation is the item's preoccupation with sex and political controversy. Such sensationalized journalism does not live up to the standard that the scientific community expects from such a respected journal as *Science*.

Duane Alexander
Director, National Institute of Child Health and Human Development, Bethesda, MD 20892, USA

Response: The new study, like the one that politics killed, does include a survey of teen sexual behavior, prepared by the research center that prepared the earlier survey.

—Eds.

■

Proposed NSF Violence Center

In a ScienceScope item, "NSF considers a violence center" (18 Mar., p. 1551), concerning the feasibility and desirability of establishing a violence center at the National Science Foundation (NSF), I am quoted as saying, "What we need now is action, not more basic research." This is not an accurate reflection of what I stated or what I believe.

In fact, when asked about concerns that I might have about the establishment of such a center, I stated that although we need more basic scientific research, policy-makers and the public have expressed an urgent need to identify effective prevention strategies. I stated my concern that NSF's orientation toward basic sciences might result in insufficient attention being given to policy-relevant research, that is, research that can help determine what works and what doesn't work in preventing injuries and deaths associated with violence in our society.

I am not "rankled" by the idea of an NSF center and believe that NSF can make an important contribution to the understanding of violence that will ultimately have a beneficial influence on violence prevention. Research on violence and its prevention is greatly underfunded relative to the magnitude of the problem, and NSF's participation in this area will expand a field of science that is starved for resources.

I also believe that the public will be better served if agencies such as the NSF, the Centers for Disease Control and Prevention, the National Institute of Mental Health, and the National Institute of Justice can coordinate their perspectives and activities in sponsoring research on violence. For all these reasons, I am fully supportive of efforts by Susan White, director of NSF's Law and Social Science program, to reach out to these and other agencies for input into the feasibility and desirability of establishing a violence center at NSF.

James A. Mercy
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