

sanctioned by government support for over 20 years, could have allowed such neglect of his expensive subjects. But Taub says NIH is trying to hold him to

unrealistically high standards. He says none of the five violations NIH identified affected the humane care of the monkeys. Furthermore, he adds, "I suspect

that there is almost no primate or animal facility in this country that you could not go through and find five violations."

—CONSTANCE HOLDEN

Cline Loses Two NIH Grants

Tough stance meant as a signal that infractions will not be tolerated

The National Institutes of Health (NIH) has stripped a researcher of two of four grants because he prematurely conducted the first gene therapy experiment in humans. The withdrawal of funds—totaling \$190,000—is the second set of sanctions that has been issued by NIH against Martin J. Cline, a professor at the University of California at Los Angeles (UCLA), on the same matter. Last spring, the agency announced several restrictions on Cline's research. Together, institute officials say, NIH's actions send a clear signal to other researchers that violations of rules governing recombinant DNA research and human experimentation will not be condoned.

On 17 November, acting NIH director Thomas Malone accepted recommendations made by the advisory councils of three institutes that some, but not all, of Cline's federal grants be terminated.

- The National Heart, Lung, and Blood Institute advisory council voted 14 to 1 to terminate a 3-year, \$240,000 grant at the end of its first year of support this spring.

- The National Institute of Arthritis, Diabetes, and Digestive and Kidney Diseases advisory council reached a general consensus to continue funding a 3-year, \$118,000 grant for nonclinical research.

- The National Cancer Institute advisory board struck a middle course. It cut Cline off from \$30,000 that is part of a larger program project grant that supports several researchers conducting clinical investigations. The board, however, recommended that the institute maintain Cline's \$100,000 grant for nonclinical research. That grant expires this spring.

Cline may appeal the NIH decision, but told *Science* that he is "uncertain" whether he will do so. He may continue to apply for grants involving recombinant DNA research and human experimentation but, according to the NIH decree last spring, he must obtain sever-

al more levels of approval from UCLA and NIH committees that oversee such research and also provide written assurance that he is complying with federal regulations. The sanctions are in effect until May 1984.

Cline found himself in trouble with UCLA and federal authorities after he introduced recombinant DNA material into two terminally ill thalassemia patients in Israel in July 1980 (*Science*, 31 October 1980, p. 509, and 12 June, p. 1253). Although he had approval to insert two genes separately, Cline went further and introduced them in combined form, which was not permitted. Cline has contended that the separated genes tend to recombine within the cell so that there is no substantive difference between the approved experiment and the one he actually conducted. Critics of the experiment said that more animal tests were needed before the clinical test could be authorized. The patients apparently suffered no ill effects from the inserted genes, nor has Cline reported that the patients received any substantial benefits. Last February Cline resigned as chief of the hematology-oncology division, but remains a tenured professor at UCLA. He wrote to NIH, "I greatly regret my decision to proceed with the recombinant DNA experiment . . . I exercised poor judgment in failing to halt the study. . . ."

Members of the advisory councils and observers of the meetings said that hardly anyone disputed NIH's first course of action last spring against Cline. But they were ambivalent to what extent he should be punished further. George T. Brooks, associate director for extramural activities for the arthritis institute, said, "There was recognition of good research [by Cline] and the desire to see him continue. But there was concern about poor judgment. It was a delicate balance. The decision wasn't easy." In the end, the final recommendations reflected a range of opinions.

The heart institute council declared in its recommendations that it considered Cline's actions "to be reprehensible and to warrant disciplinary action." An official in NIH's office of extramural affairs, Mary Miers, said that the council was "extremely concerned about the effect of this case on other blood research. Cline's experiment was most closely related to this institute's program, so that the council members were more inclined to be tougher on him."

The arthritis council said that, while it recognized the "seriousness of Dr. Cline's transgressions," NIH's previous sanctions were "sufficient chastisement."

The cancer institute was not as convinced that Cline warranted further castigation and reportedly cast a split vote on whether to fund the two grants. One board member said that part of the group's concern was recent congressional scrutiny of the cancer program and the need "to satisfy legislators" that the institute was acting responsibly. But, the member said, there was also "legitimate concern that Cline had broken rules in important ways." When votes were finally cast, some members voted differently on each of the two grants, reflecting their ambivalence, the member said.

Another member said that "by the time the issue got to us, it had taken on much more significance in the public eye and in the biomedical community. It meant we couldn't make the most impartial decision. Some people were calling for his head. I would have preferred less punishment than more."

Some researchers and observers were surprised that the advisory boards went beyond the earlier NIH penalties. Cline himself said he did not expect such a judgment. "I'm upset," he said. "The cutoff limits my abilities to continue research." Cline said he is still submitting grant applications to NIH but is turning more often to nonfederal sources for money.—MARJORIE SUN