Freedom of Expression?

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In the U.S., the language of the First Amendment is absolute, however qualified in application. When gene expression meets personal expression, though, must community standards trump individual vision?

An incident last month started us thinking, again, about how to draw the line between acceptable and unacceptable uses of biology. The incident was minor: a junior user of our online Molecular Biology Techniques Forums (1) was soliciting help to engineer luciferase into plants, fish, or amphibians, so he could sell them in Asia as living lava lamps. The project and the proposition smelled, well, fishy, and we deleted the post, though not without some self-reproach for censorship. The deciding factor for us was the apparent lack of responsible outside oversight.

And what about using the tools of biology to make, not a profit, but an artistic statement? In 2000, for example, the Chicago artist Eduardo Kac (pronounced “Katz”) caused a stir with *Alba*, a white rabbit who expressed green fluorescent protein. Kac provoked ethical debate, but no legal repercussions.

Less fortunate were artist Steven Kurtz (a professor of the State University of New York at Buffalo) and University of Pittsburgh molecular biologist Robert Ferrell. In the spring of 2004, Kurtz called an ambulance when his wife, Hope, suffered a heart attack. The EMTs could not revive her, but they did notice an array of biological equipment in the house, and reported it to the police.

Kurtz is a member of the Critical Art Ensemble (CAE), a group of artist-performers who have used displays of organisms—*Bacillus atrophaeus*, *Serratia marcescens*, and non-pathogenic *Escherichia coli*—to question the uses to which we put modern biology. Their purpose, he says, is to help lay people understand the science better so that they can better distinguish the good applications from the bad.

One of Kurtz’s projects, *Free Range Grain*, allowed participants to extract DNA from some of the stuff they eat, amplify it by PCR, and run an electrophoresis gel to check for markers of genetically modified organisms. When the FBI descended on Kurtz’s house—impounding, he says, his papers, his cat, and his wife’s body—they also seized the *Free Range Grain* installation, which included a variety of equipment designed for high school biology labs: a thermal cycler, a microcentrifuge, a vortex mixer, an electrophoresis rig, and some Biosafe

Coomassie blue stain, along with agarose, Petri dishes, and the bacterial cultures.

The U.S. attorney sought a bioterrorism indictment against the two men, but the Buffalo grand jury refused to return it, recognizing that Kurtz’s activities were to bioterror what a squirt gun is to a truck bomb: nothing.

The cultures proved to be another matter. It appears that Kurtz obtained his bacteria, through Ferrell, from the American Type Culture Collection (ATCC). So the U.S. attorney charged the pair with wire and mail fraud in a “scheme and artifice” to violate ATCC’s material transfer agreement (MTA); which prohibits redistributing organisms to third parties. Thus, Kurtz and Ferrell face up to \$250,000 in fines and 20 years in prison for diverting \$256 worth of non-pathogenic microbes (instead of, say, culturing the pink ring around someone’s bathroom drain). Kurtz points out that this is the first time in American history that someone has faced criminal charges for violating an MTA.

It is hard to see what offense could merit such penalties. Violating an MTA? Teaching the laity to run a gel? Asking questions about the social uses of science? General cussedness?

Ultimately, what worries us in this case is what worried us about the postings on our forum. According to e-mails cited in the indictment, Kurtz could not buy directly from ATCC because he lacked “a lab, a biosafety report, and scientists for references,” all required to set up an account. And in our eyes, the absence of a biosafety plan and outside review are the fatal flaws.

Kurtz said in a recent interview that he and CAE did use review boards before every installation and performance in the U.S., and held to the strictest safety standards. This is reassuring, but it would have been more reassuring—and certainly better for Kurtz and Ferrell—to have built review into their system. Not because Kurtz’s applications presented risks—they didn’t—but because in biology, unlike in speech, some forms of expression are so unacceptable that they must be stopped before they start. (Sidney Brenner used to joke that some experiments are so dangerous that they should be classified Biosafety Level 5: you autoclave the researcher for even proposing them.)

We would not tolerate that sort of prior restraint on the printed or spoken word. But speech succeeds only with the willing cooperation of the hearer. Microbes don’t care about the host’s freedom of choice.

References

1. molecularbiology.forums.biotechniques.com/forums