

Biology

Fine-tuning biotech review, regulation

At the recent meeting of the National Institutes of Health's Recombinant DNA Advisory Committee (RAC), the votes were: one yes, one no, one maybe.

The RAC agreed to exempt from special review experiments involving environmental release of organisms that have had genetic material deleted through engineering. The new rule extends a current exemption from the laboratory into the environment. The releases may still come under review by other federal agencies; the change, according to Susan Gottesman of NIH, who proposed the amendment, will enable NIH to accept the authority of those other agencies in some cases.

The amendment's main purpose is as a reminder, Gottesman says, that "deletions happen all the time in nature. Because the NIH guidelines are directed toward biotechnology and its ability to make something unique, I felt this was an appropriate place to remind people that deletions are not unique." Under the revised guidelines, experiments like the controversial one involving release of "ice-minus" bacteria (SN: 6/7/86, p.366) probably would not come under RAC's review.

The RAC rejected a request by the Boston-based Committee for Responsible Genetics to permanently prohibit certain kinds of experiments in human gene therapy. The activist group wants to ban experiments in gene therapy that could alter germline cells, and therapies for disorders that are not "life-threatening or severely disabling." The RAC has already declared these categories to be unacceptable at present.

Also proposed at the meeting was a redefinition of the term "recombinant DNA." The term has been an accommodating one, flexing to describe an organism whose own DNA has been rearranged or changed as well as an organism that has had foreign DNA inserted into it. Under the proposed redefinition, "recombinant DNA" would refer only to the latter. According to Gottesman, committee members were hesitant about the change on theoretical grounds; there are some categories of experimentation (such as human gene therapy) in which the group would like to retain the authority to review proposals in the first category as well, she says. The committee, which did not make a decision, will continue to discuss the proposal at its next meeting, in February.

This week, the House Science and Technology Committee released a report detailing its views on the administration's guidelines for biotechnology regulation (SN: 6/28/86, p.407; 8/2/86, p.71). According to a spokesperson for the committee, the report will ask the administration to reconsider several points: definitions (for example, some committee members want the definition of "intergeneric organism" broadened to include transfer of noncoding material); questions of jurisdiction between regulatory agencies; and the resulting possibility that similar organisms will be treated differently in review by different agencies.

Mother/baby pH: Birth defect clue?

Scientists know little about the mechanisms of chemical teratogenicity — how and why certain chemicals injure an embryo. Now, William Scott Jr. at the Children's Hospital Research Foundation in Cincinnati and Heinz Nau at the Freie Universitat in West Berlin suggest that pH may provide a clue.

The researchers report in the Sept. 18 *NATURE* that the pH in the cells of early mouse embryos is considerably higher than the plasma pH of their mothers. This embryonic alkalinity could lead to an accumulation of acids — and it is known that human teratogens, at least, are in general weak acids. The researchers do not know whether human embryos are similarly alkaline in comparison to the plasma of their mothers. But, Scott speculates, the pH gradient may "help to accumulate enough of the agent into the embryo for it to do its damage."

Biomedicine

Joanne Silberner reports from New Orleans at the Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC)

No AIDS via mosquitoes

The high incidence of AIDS in Belle Glade, Fla. — in the range of what is occurring in Manhattan and San Francisco — cannot be attributed to transmission of the AIDS virus by mosquitoes, according to a study by the Centers for Disease Control (CDC) in Atlanta and the Florida Department of Health and Rehabilitative Services.

Researchers from the Pasteur Institute in Paris recently reported finding AIDS-virus-like segments in the chromosomes of mosquitoes, tsetse flies, cockroaches and other insects. That information, they concluded, suggests that insects could be reservoirs of the virus and strengthens the possibility of insect-borne transmission.

But a CDC study of the 62 people diagnosed with AIDS in Belle Glade between July 1982 and mid-September 1986 shows no evidence of mosquito transmission. The CDC and Florida researchers analyzed the risk factors among the 62, surveyed 736 townspeople to see who had antibodies to the virus, and checked both the sick and healthy groups for evidence of exposure to mosquitoes.

Eight of the 62 people with AIDS had no known risk factors, but six of those had died before they could be questioned. Looking at the incidence of antibodies to the virus in the general Belle Glade population, the researchers found no antibody-positives over 60 years old or between the ages of 2 and 10. And checking for antibodies to other mosquito-borne viruses, they found no difference between antibody-positive and antibody-negative people.

Given the age disparity in infection, the lack of a relationship between mosquito exposure and infection, and the fact that most of the "no known risk factor" group had never been interviewed and could very well have had risk factors, mosquito transmission in Belle Glade is not likely, the researchers say. "If you look at all the data, you have to conclude there does not seem to be any evidence to suggest the AIDS virus is being transmitted by insects," says Kenneth G. Castro of the CDC's AIDS Program Office.

Behind the scenes

In addition to the scientific studies presented at numerous symposia, lectures and poster sessions at the ICAAC meeting there was also some real-time research going on — an attempt to determine the prevalence of diarrhea-causing microorganisms in local shellfish.

Philip Lowry of Louisiana's Department of Health and Human Resources took the opportunity of having thousands of microbiologists in New Orleans, presumably taking advantage of the local cuisine, to conduct a survey. Several hundred conference attendees agreed to cooperate.

Participants deposited carefully wrapped stool specimens (some did this quite furtively) in specially marked garbage cans throughout the meeting locale, and agreed to mail in a second specimen a few days after leaving New Orleans along with a questionnaire describing what they had eaten, whether they were on medications and whether they had had diarrhea during or after their stay. Participants who report having diarrhea will be asked to send in a blood sample so that it can be checked for signs of infection.

According to Lowry, the majority of locally caught oysters contain the cholera bacteria or other diarrhea-causing organisms, though most people who eat them don't get ill. There has been an outbreak of 12 cases of cholera in Louisiana since August, he says. The study is intended to determine the prevalence of infection, whether certain organisms are more likely to cause disease than others and what host factors allow the infectious organism to cause problems. Lowry hopes to present the results at next year's microbiology meeting.