SCIENCESCOPE

edited by RICHARD STONE

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Giving notice. Industry-sponsored panel will report on dioxin's effects before EPA does.

Industry to Strike First On Dioxin Review

In late April, the Environmental Protection Agency (EPA) is expected to release a long-awaited review of studies examining the potential threat to humans from dioxin, a toxic byproduct of paper manufacturing and other processes. But industry isn't waiting for the results, which will form the basis for further regulation of the chemical. Later this month, a scientific panel supported by the Chemical Manufacturers Association is planning to release its own views of some of the key research findings that the EPA report will address.

Dioxin is a potent carcinogen in animals, but its ability to induce cancer in humans has been debated hotly. So in 1991 EPA asked prominent outside scientists to work with staff to review existing research. Early drafts of their report, first due out in January 1993, suggest the agency has broadened its concerns about dioxin from cancer to its effects on reproduction, development, and the immune system.

That possibility prompted industry to organize a preemptive strike, assembling a panel chaired by University of Washington epidemiologist Gilbert Omenn and former EPA assistant administrator John Moore, now president of the Institute for Evaluating Health Risks. Moore calls the 18-member panel's effort "a foil to measure the EPA draft against."

One bone of contention is likely to be an EPA proposal to quantify the ability of chemicals to act like dioxin by assigning them Toxic Equivalency Factors (TEFs). Panelist Steve Safe, a Texas A&M toxicologist, argues that TEFs could "greatly overestimate" the toxicity of certain mixtures of dioxin-like chemicals.

EPA officials have declined to comment on the panel, but some scientists who share EPA's views of dioxin see it as an attempt to throw a wrench into the regulatory works. "I think it's a calculated attempt to further delay the review process," contends University of Maryland toxicologist Ellen Silbergeld, who declined to serve on the panel. Not true, says Omenn. "This is intended to be constructive, not to tear down the EPA risk assessment," he says.

Hantavirus Search Moves to the East

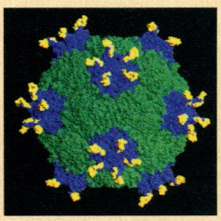
Last week, the Centers for Disease Control and Prevention (CDC) confirmed that a Rhode Island college student had died of hantavirus pulmonary syndrome (HPS). But the first known East Coast victim of the mouse-borne disease may not be the last: CDC is on the track of other possible cases of HPS on the East Coast.

Hantavirus made headlines last spring when the Muerto Canyon Virus (MCV) strain began killing people in the southwestern United States. MCV, transmitted by air from deer mice to people, has caused lung-failure deaths in 60% of confirmed cases so far. Last month, CDC isolated a new strain from a Florida man with a mild lung infection (*Science*, 25 February, p. 1079).

But the strain that killed the student appears quite different genetically from other strains. So far, gene amplification tests have not identified viral fragments in the student's tissues.

Even though the strain has eluded classification so far, CDC may be able to link it to other respiratory victims. CDC scientists are investigating "a handful of suspicious cases, including some on the East Coast," says epidemiologist Rima Kahabbaz. Until it has confirmed the evidence, however, CDC does not want to identify the sites it's investigating.

Reaping Human Vaccines From Plants



Old MacDonald had a helluva farm, but he never boasted of crops that could produce human vaccines. Perhaps that's because he never grew the cowpea, a plant that some scientists hope to use as a miniature AIDS-vaccine factory.

Studies based on the cowpea are focusing new interest in a theory, disappointing until now, that fragments of harmless HIV proteins might be used to stimulate the production of large quantities of antibodies which could then attack the whole virus. So far, however, fragments alone have done a poor job at generating a vaccine-strength immune response.

But now a cowpea-based technique—developed by biophysicist John Johnson of Purdue and virologist George Lomonossoff of the John Innes Institute in Norwich, Britain—looks as though it might succeed where others have failed. The plant researchers modify the RNA genome of the cowpea mosaic virus (CPMV) to splice a sequence of amino acids from a virus of interest—such as HIV or a rhinovirus that causes the common cold—into a protein that sits on the CPMV coat. The researchers then inject modified CPMV into cowpea plants, where the virus reproduces like crazy. According to Johnson, mice inoculated with CPMV doped with an HIV protein produced antibodies to neutralize HIV.

"The concept is pretty exciting," says Cornell plant pathologist Milton Zaitlin. But wait—even wilder schemes may be in the offing. According to cell biologist Roger Beachy of the Scripps Research Institute, who's working on a vaccine system using the tobacco mosaic virus, scientists hope someday to develop crops that function as edible vaccines.

ORI Wins!

After losing twice and abandoning two cases, the federal Office of Research Integrity (ORI) has won its first appeal. Earlier this week, the Department of Health and Human Services appeals board upheld ORI's finding that former University of Pittsburgh immunologist John Hiserodt falsified data, tables, and figures in two 1989 grant applications to the National Institutes of Health. It concurred with ORI's call for Hiserodt to be barred from receiving federal funding for 5 years.

DOE Opens Doors To SSC Proposals

Though it may never solve any high-energy physics mysteries, the unfinished Superconducting Super Collider (SSC) may have a research role after all. Earlier this week, the Department of Energy (DOE) announced that it is ready to consider proposals to utilize the Texas site or its equipment for other scientific projects.

Last October, Congress halted construction on the SSC after 3 years and an expenditure of $2 billion. Because Texas was a big backer—it kicked nearly $500 million into the Waxahachie site—DOE has agreed to consider several state proposals, including plans to use it as a superconductor research lab, a computing center, and a cancer treatment and medical isotope facility. Federal funding for one of these proposals could partially compensate Texas for its investment and limit the amount of money the state will claim from DOE. "We're going to say to Texas, give us your three best, we'll analyze them," DOE Secretary Hazel O'Leary told *Science*.

But, in a nod to the rest of the U.S. physics community, DOE is inviting outside proposals, too. Some physicists, for example, have suggested using the SSC lab to build magnets for the planned Large Hadron Collider at CERN, the European physics laboratory. Although Congress has called for DOE to get as much science as it can from its SSC investment, O'Leary says she's willing to fight for extra funding if the proposals warrant it. DOE hopes to evaluate proposals in time for a required report to Congress in July.