

"kindling" action of cocaine through probes in the brains of primates, has given up research with animals because it now requires "jumping through too many bureaucratic hoops." (Kindling refers to convulsions deep in the brain caused by cocaine, which are triggered by smaller and smaller amounts in the habitual user.)

Goodwin, who has been the live wire in the government with regard to responding to animal rights activism, says the federal health establishment is finally abandoning its "bunker mentality." One of the first signs of change occurred last year when Schuster accused Cornell University of setting a "disastrous precedent" by abandoning, under pressure from activists, a project involving the use of cats by researcher Michiko Okamoto.

Goodwin believes that researchers are finally beginning to recognize that animal rights activism is not a passing fad, but a much deeper phenomenon, fed by a confluence of forces—including "growing scientific illiteracy" and "post-Watergate skepticism" toward authority and experts in general. "For a long time we took them [activists] at face value," he says. When NIH originally tried to placate them by endorsing the devel-

opment of alternatives to animals, "that just encouraged the opposition to get Congress to put money into alternatives, and gave imprimatur to the notion that alternatives might be around the corner." He believes that the "moderate" response by the scientific community, which readily accepted—at least in public—the appropriateness of more stringent safeguards, "merely pushed the center of the debate in a more radical direction."

Now, says Goodwin, science is threatened by the fact there is "no apparatus for dealing with long-term structural issues" such as animal rights and scientific fraud and misconduct. "There is no reward system in science for doing anything other than science."

The animal rights movement, meanwhile, remains a potent political force. In spite of the more aggressive stance by federal officials and institutions such as NYU. So far, Congress has not made any move to mitigate the impact of costly new regulations. The only significant initiative pending at the moment is a bill introduced by Senator Howell T. Heflin (D-AL) that would make lab break-ins a federal offense.

■ CONSTANCE HOLDEN

AIDS Researchers Upset by Refusal to Share Probes on Mysterious Microbe

The strange case of Shyh-Ching Lo of the Armed Forces Institute of Pathology in Washington is causing a furor in the already fractious world of AIDS research. Lo recently published a paper* in which he claims to have discovered a new "virus-like infectious agent" in AIDS patients but he is refusing to give samples of the mysterious microbe to other researchers—even those working for the federal government.

Lo and his coauthors state that the virus-like particles, which they found in the organs and lymph nodes of seven of ten AIDS patients, may represent a new opportunistic infection or "an agent which plays a more fundamental role as a cofactor in the process associated with infection by HIV." But they are not sure what they have discovered.

Intrigued by the report, and prodded by questions from the news media about the importance of such a discovery, some of the federal government's most powerful AIDS researchers now want samples of Lo's virus-like agent and certain molecular probes he used in his studies. Though the researchers say that Lo may have uncovered nothing

more than a contaminant, they are certainly interested in learning more. But Lo is not cooperating.

"I don't know what he is working with, but he must distribute this material so that people can work with it. That is the way that science is done. That is the way that things move forward," said Malcolm Martin of the National Institute of Allergy and Infectious Diseases. "This whole business is crazy."

Anthony Fauci, head of AIDS research for the National Institutes of Health and director the National Institute of Allergy and Infectious Diseases, said, "His unwillingness to work with other scientists is very unscholarly . . . very unscientific."

Robert Gallo of the National Cancer Institute was more direct: "I want those reagents."

Prem Sarin of NCI, a colleague of Gallo's, contacted Lo about the virus-like agent and probes last week, but Sarin said he was told by Lo that the probes and an isolate of the microbe were not available.

Lo declined to answer repeated phone calls and a request for an interview by *Science*. The director of the Armed Forces Institute of Pathology, Navy Captain Robert Karnei, said that Lo had applied for

patents and that the lab would not share reagents with researchers unless they entered into collaborative research agreements with the Armed Forces Institute. Karnei said Lo was now collaborating with several federal and nonfederal researchers, but he would not say who they were. "We're keeping that under wraps," said Karnei. Told that Fauci characterized the withholding of probes and information as "bush league," Karnei responded: "That's his opinion."

Colonel Douglas Wear, chairman of the department of infectious and parasitic disease pathology at the Armed Forces Institute of Pathology, supported Lo's position, questioning whether researchers requesting probes and reagents had pure motives. Said Wear: "Do people want to confirm other people's work or do they want to make their own discoveries?"

But Fauci said that perhaps Lo's resistance to discuss his work or share reagents arose from a fear that "Gallo would put his machine on it." Gallo himself said that fears of "Big Bad Bob" and his research machine were being used to keep legitimate researchers from studying Lo's agent. Gallo sent a formal letter to Karnei requesting reagents and samples of the virus-like agent.

To Wear, though, Lo has already done enough. Wear said that the Lo paper contains a printed sequence of 160 base pairs taken from the DNA of the virus-like infectious agent. Using the polymerase chain reaction method, this sequence was used by the Lo team to search for homologous DNA in the tissues of AIDS patients. Wear seemed to believe that this short sequence should be sufficient to satisfy Gallo.

He was mistaken. "They've published on the goddamned thing and now that it's out there I really think that the reagents should be made available," as well as the agent itself, said Gallo.

If the agent turns out to be a virus, it is one with a large amount of DNA. Lo reported that the genome had more than 150 kilobase pairs and said that it is different from all known members of the human herpes virus, from vaccinia virus, monkey herpes virus, and mouse cytomegalovirus.

"It could be a novel agent," said Bernard Fields, a virologist at Harvard. "But it is very important for others to now confirm his findings and work with the virus." Fields said that only two virus families have such large genomes: the herpes viruses and the pox viruses.

Fields could not understand why at this point Lo did not share his reagents with others: "It's only to his credit, if other people confirm the finding. I don't see what the problem is. It's his, whatever it is."

■ WILLIAM BOOTH

*S.-C. Lo et al., "A novel virus-like infectious agent in patients with AIDS," *Am. J. Trop. Med. Hyg.* **40**, 213 (1989).