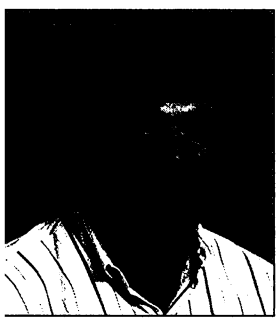
issue introduced by Kirschstein and Baldwin: What should be done when a university owns a piece of a company whose value will be affected by the outcome of a clinical trial? Such situations appear to be growing more numerous, although Kirschstein says no one has much data about the topic, except for "a few anecdotes, I think."

Gene therapist Woo says he knows enough to express his views: "I find it difficult to understand a nonprofit, public university holding equity in a for-profit company," Woo says. Nonprofit universities should be "precluded" from such investments, he says.



Concerned. Koski thinks conflicts are "out of control."

That position is too radical for AAU's Hasselmo. "We shouldn't throw out some valuable babies with the bath water here, because some of these collaborations are very important," he says, noting that an AAU task force is trying to develop principles for managing conflicts. Universities, he adds, see self-policing as preferable to "further rules and regulations" by the government.

Koski noted that the problems facing U.S. clinical research extend beyond federally funded academic medicine. A growing proportion of the work is being performed outside of academic health centers and beyond government oversight, he said. This situation calls for "uniform guidance" at the national level, he added, warning that "if guidance itself is not effective, then it seems to me that rules and regulations and legislation will follow."

Koski, who takes up his new job next month, said that shoring up the protections for human subjects in research involves issues that "go well beyond conflict of interest." Proposals by HHS's Office of Inspector General for redesigning the entire system of protecting clinical research subjects "are very, very much on my mind," Koski said. "Individuals and institutions who fail to truly accept their responsibilities and work to achieve them," Koski said, "simply should not be permitted to engage in" clinical research. "More on that after Labor Day," he promised. But he clearly intends to take a tough line.

–BRUCE AGNEW

Bruce Agnew lives in Bethesda, Maryland.

GENOMICS

Building a Case for Sequencing the Chimp

First came humans, then mice and, most recently, rats (see next story). And now, a motley queue of other vertebrates—including dogs, chickens, and pufferfish—has formed, each one vying to have its genome sequenced next on the limited budget of the National Human Genome Research Institute (NHGRI).

The most recent entrant is the chimpanzee. In a letter to *Science* on page 1295, an interdisciplinary group—which includes 26 geneticists, anthropologists, and molecular evolutionists—says top priority should be given to a primate. Their first choice is the chimp, whose genome is 98% identical to that of humans.

By finding those few critical genetic differences between humans and chimpanzees, geneticists hope to solve the mystery of what makes humans unique. Specifically, they want to find the genes that underlie the striking differences between humans and chimpanzees in cognition, reproductive biology, and behavior. "Until we understand how we differ genetically from our nearest relatives—the apes—we won't understand the genetic basis for being human," says Edwin McConkey, a molecular biologist at the University of Colorado, Boulder, and one of two co-authors of the letter. "The mouse genome will tell us why we are not mice, but it will never tell us why we are not apes."

The advocates, who include Nobel Prize winners Francis Crick of the Salk Institute and George Palade of the University of California, San Diego, also argue that identifying the differences in the DNA of chimps and humans should explain why humans but not chimps get diseases such as malaria and Alzheimer's, and why chimpanzees rarely get cancer and get a much milder form of HIV. Finally, the group writes that a chimpanzee genome project might raise public awareness of this endangered species.

Those arguments are already well known at NHGRI, where deputy director Elke Jordan says that the chimpanzee is "definitely a strong candidate" to have at least part of its genome sequenced. Jordan even sees a way to reduce the estimated $100 million cost, by focusing not on the entire genome but on areas of suspected differences between humans and chimpanzees. Still, the chimpanzee lobby is up against a host of other organisms. Notes Jordan: "There are all kinds of animals of great interest to somebody."

–ANN GIBBONS

GENOMICS

Rat Genome Off to An Early Start

Assuming that if two mammalian genomes are good, then three would be better, the National Human Genome Research Institute (NHGRI) has jump-started efforts to determine the order of the roughly 3 billion bases in the rat genome. The original plan had been to wait for funding, expected in fiscal year 2001 (*Science*, 26 May, p. 1317). Instead, two of the 10 centers involved in sequencing the mouse genome are now shifting to the rat. If the budget proposal passes, the National Heart, Lung, and Blood Institute (NHLBI) will kick in a total of $58 million, as planned, to be distributed in 2001 and 2002. During that time sequencers will produce a rough draft of the rat genome—in parallel with the rough draft of the mouse.

Having data from two rodent species should speed the discovery of genes and regulatory regions in the human genome and make it easier to determine their functions. Although the mouse is a favorite of geneticists, the rat has captivated physiologists for 150 years and is the animal most often used by pharmaceutical companies for preclinical testing of new drugs. Thus,

NHGRI VERTEBRATE SEQUENCING PROJECTS

Organism	Status
Human	Finished version by 2003
Mouse	Finished version in 3–5 years
Rat	Working draft in 2–3 years
Chicken	Pilot project
Pufferfish	Pilot project
Zebrafish	Pilot project
Primate	Under consideration